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The Agriculture of the United States.

In a series of papers upon this subject, in the *Boston Cultivator*, Major Ben. Perley Poore asks the question, "What has been the agricultural progress in the United States during the past hundred years?" and proceeds to answer the query. Before giving the response of the writer, we would beg to make some remarks upon the subject, giving our own observation and experience.

In 1818, John S. Skinner published *The Crisis*, a political paper, gotten up after the conclusion of the war with England; its publication lasted for a year, when he commenced the AMERICAN FARMER, which was the first regular agricultural periodical ever published in this country. This gave somewhat of an impetus to the investigation of agricultural subjects, and it was followed some few years after by the publication of the *Albany Cultivator*, under the auspices of Judge Buel, who guaranteed the publisher from pecuniary loss for a certain period, when the paper was furnished to its readers at 25 cents a year. These two publications, though ably conducted, made slow progress for a number of years in attaining the object of their establishment. We remember when we first became connected with the publication of the first named journal, now just fifty years ago, the state of agriculture in Maryland and the adjacent States of the South was in a most deplorable condition, and many farms, especially in the southern counties of our State, were absolutely deserted, and the owners of them left for the West, they not being able to find purchasers for them, so completely were they exhausted of all fertility, and not affording food for their occupants. This condition of things lasted until the discovery of the value of Peruvian guano, the first barrel of which was imported into this State by Mr. Skinner. The supply, however, did not afford for some years afterwards a sufficiency to make it generally known, until the Peruvian Government established an agency in Maryland for its sale, and the wonderful effects experienced by the use of it upon the worn-out lands of Maryland, Virginia, and the States farther south of it, created a furor which is no doubt well remembered by many of the farmers of the present day; and from this time forward, an impetus was given to the improvement of our agriculture with this and other fertilizers which were successively introduced. We alluded to this matter, in connection with what Major Poore says upon the subject, and our pages in past years afford evidence of the progress of events.

Mr. Poore, in answer to the question propounded by him, as quoted above, says:

"Of course, our entire products have increased in amount, but are the per acre yields larger now than they were then? We have, to be sure, obtained abundant crops from our rich virgin soils, and when these have become exhausted, under bad management, we have occupied and exhausted others in their turn. But what is the condition now of the lands that were cultivated by our fathers half a century ago? Do they produce the average crops which are given as the products of Scotch husbandry, under all our favorable circumstances of climate and of civil liberty? Are our crops half as large? At the close of the last, and in the beginning of the present century, the surplus products of New England and New York agriculture were exported to an immense amount. Now we import the agricultural products of the great West into those sections. The cause of this remarkable difference in the surplus products of the soil may be partially owing to unpropitious seasons, but is mainly to be sought for in the neglect of our agriculture—both by the people and the government. In Europe the governments and influential individuals have bestowed spirited attention upon the improvement of agriculture, as constituting the basis of national prosperity and independence, while with us improvement in husbandry has been considered a minor concern—it at least has not received the consideration of the statesman or the political economist. *Party politics, and local or personal schemes of aggrandisement*, have so much engrossed the attention of the men who ought to lead in these matters, and who do lead in every other public improvement, that the humble claims of agriculture have failed to attract their notice, or engage their attention, although it constitutes the base which supports the whole superstructure of civilized society. If we would preserve the superstructure, with its embellishments, we must take care to make strong and permanent this foundation. Our farmers, too, seem generally indifferent, or spiritless, in regard to the general improvement of our agriculture, either because they mistake their duty and true interest, or that, under the influences of a strange fatuity, they fear they shall sink as others rise.

"Judge Buel, whose views I am incorporating in this article, thought that a State which did not raise its own breadstuffs was in a bad way. Venice, and Genoa, and Portugal, and Spain, have each in turn had their 'days of commercial prosperity.' They successively rose to opulence, to power, and successively sank, the victims of corruption, into effeminacy, vice and despotism. Manufactures, too, as we have had abundant cause to know, are but a precarious dependence for national greatness. Commerce and manufactures are the shaft and capital of the social column, of which agriculture constitutes the base, and without this base they can no more withstand the shocks and revolutions of time than could the short-lived glory of the nations we have named. Great Britain now wields the trident, and the world is made tributary to her workshops. But great as she is in commerce and manufactures, these are considered secondary and auxiliary to her agricultural greatness. Land is the basis of her national wealth; it is the surplus marketable produce of her soil, says Sir John Sinclair, that is the source of all her political power, and of the personal enjoyment of her citizens, and there is no source of domestic industry, or of foreign commerce, he adds, that can in any respect be put in competition with the improved cultivation of her soil. The agriculture of Great Britain employs but two-thirds of her population, and yet the surplus products of her soil suffice to feed and support the other third.

[At the time Sir John Sinclair wrote, such might have been the case, but it is not so now.]

"If reform is necessary, and all must admit that it is, in agriculture, it is best that it should be first made upon the ductile minds of the younger population. The old are apt to be too obstinately wedded to their juvenile habits and prejudices. Men are apt to grow up in the creeds in which they are instructed, be they Christian, Mahomedan or Pagan, be they of good or bad husbandry. And if our youth can be practically instructed in the first elements of agriculture, and taught to consider it, what it truly is, an employment eminently calculated, above all others, to promote individual and national prosperity and happiness, they will aspire to honor and distinction in its labors, and will not so generally press to the cities, to the bar and the counter, for the means of gratifying a laudable ambition. And society will reap an abundant reward from the change. I will illustrate this by a historical fact. Ernest, former Duke of Saxe Gotha, had his people instructed by compendiums of every kind of useful knowledge, including music and drawing, that were put into the hands of youth in all country schools and which in a few years entirely changed the face of his principality, and 'it is amazing,' adds the author, who wrote some years afterwards, 'to observe the different irradiations of genius in this and the adjacent circles.' The effect was alike beneficial in the improvement of the soil and the mind. And the example of Saxe Gotha probably led to the excellent system of instruction in agriculture which has since been introduced by Prussia and most of the German States."

Conclusions About Ensilage.

A committee of the Essex (Massachusetts) Agricultural Society made a careful investigation, by correspondence, of the experience of those who have tried ensilage, and reached the following conclusions:

1st. That this method of preserving green fodder for winter use is a success, when the necessary conditions are secured.

2d. That ensilage is a nutritious and profitable feed for all kinds of farm stock, but especially adapted to milch cows.

3d. That the flavor of the milk and butter is not much different from that made from summer green feed, but is more uniform.

4th. There is invariably an increase of flesh and flow of milk, when the same amount of grain is fed with it as with English hay.

5th. That the quality of beef is very much improved by its use in connection with other food.

6th. That in order to reach the best results, ensilage should be fed with some other nutritious fodder.

7th. That all kinds of grass or grains may be stored with safety, but that corn and clover mixed with apples make the best ensilage.

8th. That the finer it is cut and the more heavily it is weighted down, the better, as the air is thus expelled from the silo; which alone secures its preservation.

9th. That there is not much difference between Southern White, Blunt's Prolific and Bailey's Mammoth corn for seed; all are good.

10th. That the cost of producing and storing ensilage is from two to four dollars per ton.

11th. That the best material for constructing a silo is stone and cement, and the best material for weighting the ensilage is stone from 25 to 50 pounds weight.

12th. That it will not pay to plow up land that is now yielding two tons of hay to the acre to plant ensilage corn; but that land that needs plowing up and working over, or as a second crop following some other crop. There is no better crop for fodder than one you can ensilage for winter use.

In thus presenting the results of our investigations, we have not taken the extreme statements of our correspondents of either side, but have presented the substantial facts in the investigations, realizing that the whole subject is yet in its infancy with us, although very thoroughly understood and applied by our neighbors across the sea. But we have no doubt that during the next ten years such improvements will be made in producing, storing and feeding ensilage, that it will take its place among the standard farm crops of the country.

Fall Plowing for Corn, and the Profit of Corn on Hilly Land at Present Prices.

The Fallston Farmers' Club of Harford Co., Md., met at Sunnyside, the home of Mr. James Robinson, Thursday, Oct. 30th.

The president appointed as committee of inspection Garrett Amoss, Joseph Hoskins and Wm. Preston. They reported everything in very good condition; would advise him to cut his fodder instead of feeding it on the stock.

Mr. Keech wanted to know if it is best to plow in the fall for corn.

Mr. Garrett Amoss thought that land plowed in the fall will be harder and more difficult to keep clear of grass and weeds than that which has been plowed late in the spring.

Mr. H. Preston likes plowing in February.

Mr. Wm. Preston preferred plowing as late as possible before planting. A piece of ground he had in corn this year verified his opinion.

Mr. Robinson's experience is against fall plowing; thinks it takes nearly as long to prepare a field for planting after fall plowing as it would to plow it again.

Mr. Edelin thought the longer land is kept in sod the better. Prefers plowing in February.

Mr. Hoskins would plow as late as possible before planting; thinks it makes a better crop; the worm will not be so bad; would not plow so early as February.

Mr. Favor would rather be two or three weeks late in planting than to plow in the fall.

Mr. C. J. Moore observed that fall plowing on the Moss-wood farm is best, as the land does not bake, it being sandy, and he thereby gets rid of the worms, which have been an annoyance; it washes, however, somewhat, which is an objection.

Mr. L. Bond thought it harder to get the ground in order when plowed in the fall, but likes it because it helps the work in the spring.

The subject for discussion was next taken up, "Is corn a profitable crop on hilly land at present prices?"

The opionion of the club was that it is not a profitable crop to grow exclusively for the market; but, as a crop grown in rotation, after a field has failed to produce less than one-half ton of good hay to the acre; there is no cereal, even on hilly land, more profitable, taking the fodder in consideration, than the corn crop, but all agreed that it would pay better to buy corn at present prices than to turn down a good sod for the sole purpose of growing corn. Mr. Edelin differed with the general opinion. It was evident from his remarks that he had given the subject considerable thought. He carefully figures the cost by charging the crop with labor, fertilizers, exhaustion of fertility and the washing to which hilly land is subject, to within three dollors of the market value of the entire crop, fodder included. This small sum, he says, will not justify us to grow corn, but try to bring our fields into grass in some other way than by first growing corn.

The club adjourned to meet Nov. 27th, at Lavista, the home of Mr. Wm. Edelin.—*Belair Times.*

Applying Manure.

After careful study and experiment, says a correspondent of an exchange, I have adopted the rule of using most of my manure at the surface. The only exception to this rule which I make is when I wish to manure very heavily to permanently enrich a garden plot, and then I plow under a liberal coat of manure and top dress in addition. When manure is to be used for wheat, so convinced am I of the superiority of top-dressing that I would not allow a man to draw out the manure before plowing the land if he would do it for nothing. We want the manure applied to the wheat crop so as to act as quickly as possible, for the wheat has a short time to grow in the fall, and it is important that it get well rooted and make growth enough to protect the roots before the winter sets in, and the finer the manure is, and the nearer the surface, the quicker its effect will be on the young crop. I am satisfied that by fining our manure and using it at the surface we can double its value for the wheat crop.

Another and still more important reason for using manure as a top-dressing is that with the manure so applied we have a rich seed-bed of clover, which make a stand and vigorous growth much more certain than if the manure was plowed under. I believe clover to be the cheapest and best fertilizer within the reach of the farmer, and that the clover will furnish a better condition of soil for a succeeding crop of corn or wheat than the manure does. Using manure as a top-dressing on wheat when clover is sown—as I believe it always should be—enables the manure to do double duty. First, it largely increases the wheat crop, and second, it grows a fertilizing crop which requires no heavy hauling or spreading, but is just where the farmer wants it without extra labor. The only valid objection I have ever heard urged against the practice is the extra labor of fining the manure. In reply to this I would say, 1, that the plant cannot use the manure till it is thoroughly decomposed; 2, we save enough labor in drawing to the field in the reduced bulk and increased ease of handling to largely compensate for this labor; and lastly, this fine manure will cover a much larger area than that which is coarse and lumpy.

Cement Pipes.

Messrs. Editors American Farmer:

Is not Mr. Porter in error in his statement in the last issue of your journal that drain tile must be porous and to that end should be burned?

Such authorities as Waring and French say that the joints of drain tile will admit more water than the tile can carry and that porosity is not at all essential. If this be true, the only question before us in making tile from cement is the one of economy. Ordinary tile cost in Baltimore and at other shipping points $15 per thousand; to this must be added freight and breakage, two items sufficient to bring the cost of the tile to nearly $25 per thousand. One of our prominent agricultural implement dealers here will not order tile for his customers because of the breakage and general unsatisfactory condition of the article; the customer must negotiate direct with the maker. I have seen a carload of drain tile offered for sale here at $20 per M., which would be dear at one-fourth that sum. Rather than undertake these adverse chances it is but natural for us to wish to get our tile at fair rates, but whether cement affords this end is problematical.

I know how to handle cements successfully and have no fear of my ability on that point, yet I appreciate in the absence of a cheap, practical machine for making the pipe from the cement that the cost may be greater than $25 per M.

Clean, washed, sharp sand when properly manipulated with good cement never fails to secure perfect setting, but poor sand always gives unsatisfactory results, for no skill or cement will make amends. I enclose a clipping just taken from the *Country Gentleman.* It is a response to an inquiry propounded in that journal and gives us clear information. The writer, however, says that there is no economy in cement tiles, as they will cost nearly $25 per M., even when made at leisure times on the farm. R. S. Lacey.

Washington, D. C., Nov. 13, 1884.

Make a few moulds, half-round inside, 16 feet long, with the hollow 2½ inches in diameter and 1½ inches deep. Divide the mould into spaces 16 inches long, with plates of sheet brass or zinc let into the wood and hollowed to receive a core 1½ inches thick. The moulds may be made of hemlock or any other kind of timber, sawn 3 by 2 inches. The core is held by the metal plates ¼ of an inch from the surface of the mould, so that when the mould is filled with the mixed cement and the core is pressed down upon it, the mould makes 12 half pipes. By then covering the core with cement, and smoothing it off with a short section made like the mould, the pipe is completed. All that is left to do is then to cut through the soft cement above the plates in the mould, by a similar plate pressed down through the cement, which is then divided into sections above as well as below; and to draw out the core and leave the cement to harden. The tiles may be made two or three at a time, and the core drawn along as described for making the continuous pipe referred to by R. S. L. By having half a dozen or more moulds on a bench and a second man to mix the cement, the work may go on very rapidly, and I think a thousand tiles may be made in a day by two men after a little practice. In 3 or 4 hours the tiles may be lifted out one at a time by a rod inserted in the bore, and carefully laid upon a sanded drying floor to harden. Some years ago, I made an apparatus of this kind for making 4-inch pipes, which I could not procure in any other way, and it answered perfectly. The moulds need to be thoroughly saturated with hot tar, so they will not absorb water, and should be dusted with fine sand before the cement is laid in them. The mortar I used was made of one part of Rosendale cement and three parts of clean washed sand.

Agricultural Engineer.

Live Stock.

Protection in Winter of Our Domestic Animals.

By B. Puryear, LL. D., Professor of Chemistry in Richmond College.

We are enjoying now that most delightful period of the year, the calm mellow days of Indian summer. It is a time which suggests a pause in the hurried round of labor and of duty. The fruits of the year have been gathered and garnered; and our stores, yet untouched, invite to enjoyment, to relaxation, and repose. The corroding anxieties and the pressing labors of another crop are now falling from the farmer's shoulders. A good breathing spell has come. It is in order for him to have now a little fun and frolic, if so he choose. Let him bag as many birds as he can; or follow, if he will, the tuneful hounds. He has earned a right to a respite, and let him enjoy his plenty and his leisure.

He is not pressed now with slavish and inexorable duties. He has a good quiet time for calm retrospection. He can discover the errors he has committed, and deliberately lay his plans for better and more successful methods in the future. One duty, a pleasant duty, appeals to him, at this season of the year, with special propriety and force. As a matter equally of interest and of pleasure, the farmer should now provide for the comfort of his domestic animals. The work teams should be brought during the fall and early winter into the best condition for another year's labor. They will take on flesh and fat rapidly now. The temperature of the atmosphere and their keener appetite for food favor this result. When the severe winter cold has set in, no animal can fatten rapidly. The larger part of the food is burned off to keep up the supply of animal heat. If a horse has become fat by Christmas, he will keep fat the balance of the winter on less food than would have been required to keep him in barely tolerable order all through the winter. Fat is an excellent non-conductor of heat. Hence when the muscles and vital organs of an animal are well protected by fat, there is much less loss of heat from the body. Hence less food, which, to a large extent, is only fuel, will be needed. It is really cheaper to the farmer to see that his teams are well housed, well fed, well bedded, regularly watered and made in every respect comfortable so as to be brought into good condition before the hard winter weather comes, than to allow them from lack of attention and food to drag through the winter lean, shivering and weak. Up to this point we say it is cheaper; how vastly cheaper when the work of another year demands their strength! How pleasant, when the days of heavy work again have come, to see the stubborn glebe turn from the shining plow as the teams, sleek and plump, seem with proud ease to perform their task. For the care and attention they have received, they do more work and do it better.

The farmer soon receives back more than the cost of the erection of ample and comfortable accommodations in winter for his domestic animals in their better condition and diminished amount of food required. The function of food is two-fold; a part—the nitrogenous compounds—repairs the constant waste of the system and builds up the vital tissues of young and growing animals; but the remainder of the food, by far the larger part, is chiefly consumed as fuel for generating animal heat. It is as truly burned off in the blood, developing heat, as coal is burned in our grates. The process and the results are identical. Whenever an animal by exposure loses heat rapidly, it must, if it is to maintain its condition, consume more food as mere fuel for the internal fire. What would be thought of the reckless waste of the farmer who should use his hay and shucks for making fires to keep his cattle warm? And yet this thing and nothing else, the farmer does who exposes his domestic animals to the fierce winds and bitter cold of winter. Their temperature must be kept up to the normal point of 98 degrees, or they die; and they can maintain this temperature in cold weather only by making the internal fire bigger as the temperature of the atmosphere goes down. It is pleasant to reflect that our interests and humanity—if kindness to dumb animals may be called humanity—alike urge us to make proper provision for their protection against the rigors of winter.

What are the best plans for accomplishing the objects indicated will depend, to a large extent, upon circumstances, and may give rise to variant opinions. I venture to suggest a simple plan, which, it seems to me, is well calculated to accomplish the object in an inexpensive way. Let the farm yard be large for the number of animals to be cared for, and let it be terminated by sheds on the north, east and west; the sheds, open in front, to be covered with shingles and the back of the sheds to be made of upright boards and constituting the fence of the farm yard. By this arrangement, protection is secured from winds coming from the north, east and west; and all the rain that falls upon the sheds is turned from, and not into, the farm yard. Cattle may be fed under the sheds or in the open area according to the weather. The cattle will consult their own instincts—the best guide—as to whether they will sleep under cover or in the open air. If thought desirable, the farm yard may be divided to afford separate accommodations for sheep and hogs.

Other objects, than mere shelter, may be accomplished by these sheds. They may be used for storing provender in the fall and early winter, becoming available for shelter as the winter advances and provender is consumed. A part of the covered area could be utilized for throwing daily the excrements and stained bedding of the animals. The amount of manure saved would be larger, its quality vastly better. Stalls for fattening beeves could be made under the sheds, and special provision also for calves and milch cows.

And when the winter is over, the enclosure might be utilized for protecting sheep at night from those conspicuous and harmful products of unlimited suffrage, thieves and dogs.

The Economical Winter Feeding of Cattle.

These cool and delightful November mornings, with the white frost covering the meadows and the leaves tumbling about us, is a gentle reminder that the fall is about over and winter is near at hand. To the provident farmer winter is a season of enjoyment; to the improvident one it is just the reverse.

The cattle should now be in the barns and stock yards. And to me there is not a pleasanter winter sight than to see a large well ventilated and lighted Switzer barn well filled with early cut clover hay, corn fodder, and other feeding material, with plenty of pure water near at hand, and with a warm well-sheltered yard attached, a large rick of straw therein. It is, I say, a pleasant sight—especially if the eye should see the well-rounded forms of sleek, well-fed Devons, or of Jersey cattle with their fawn-like appearance. The question comes to each one of us, how shall this feed be dispensed to accomplish the most good for the milch cows, these yearlings, and this bunch of steers, and give the farmer a money return for his labor and skill employed? If the feed is fed as it is, without preparation and lacking judgment, will we not just bring the cattle through the winter in about the same condition as when they went into winter quarters, and our only return be what

manure may be in the yard, and oftentimes poor at that?

Economy dictates that the long feed should be cut and mixed with good mill-feed, and with middlings at 24 cents per bushel, 4 qts. with the addition of 2 lbs. of linseed meal, and 4 qts. of corn chops, fed with regularity, will make, and at a cheap rate, fat cattle and plenty of good milk.

Last winter I fed twenty milch cows, four yearlings and two calves, in the following manner:

½ Bushel of grains	Cost	.05 cts.
½ Peck of middlings	"	.03 "
½ Peck of corn and cob meal	"	.06 "
1 Pint linseed meal	"	.02 "
1 Bushel of equal parts of clover hay and oat hay	"	.04 "
		20 cts.

And these were all mixed and fed morning and evening a little at a time, and at noon bright corn fodder was fed to them in racks in the yards. The yearlings and calves were fed in proportion to their needs. The cows averaged three gallons of milk each for two and a half months and then 2½ to 2 gallons for the next three months, and in fact did as well as when on June pasture.

In the spring the fattest of them sold for beef and averaged $61.75 per head. The yearlings and calves also did well and made good growth. I find a feed of charcoal (made fine) once a week a great help for all stock; and now and then, say once a week, or oftener if the stock is in bad order or condition, a heaping tablespoonful of the following old English mixture, and which I think may have been published before, but at all events is first-class and can be mixed by each one for himself. Compounded as follows:

Oil meal	50	pounds
Sugar, common	10	"
Corn meal, fine	40	"
Fine middlings	20	"
Turmeric root	1¼	"
Anise seed	¼	"
Ginger	¼	"
Caraway seed	¼	"
Gentian	¼	"
Cream Tartar	¼	"
Sulphur	1	"
Salt, fine	2	"

I have fed to fattening cattle common molasses, a little each day, over their feed and with great good, and was greatly relished by the stock.

I wish to say here a word in favor of oat hay—that is, oats sown on rich ground at the rate of four bushels per acre and cut in the milk. It yields enormously as it makes its growth when we have moisture in abundance, and is harvested when we have hot suns to cure it properly, and a crop of corn fodder can also be grown on the same land. Oat straw fed in connection with clover hay and corn husks and mixed with meal and some cotton seed or linseed meal added, say one pint per day, makes a fine and cheap feed. I think it was Professor Sanborn, of the New Hampshire Agricultural College, in his five years' trial of cattle feeding, found that well-cured oat straw, after the grain was threshed made excellent feed in connection with cotton seed meal. If I remember aright 65 lbs. of straw and cotton seed meal being found to produce as good results as 100 lbs. of good hay.

Corn planted on rich ground in the early spring in check rows, leaving six to eight grains in each hill, cultivated thoroughly, and at the last working in July, timothy and turnips sown on the newly worked soil makes an economical and rich feed, and gives a well-set field besides. Corn grown for grain, if it is cured properly, that is when the ear is just glazed and set up properly, is a cheap feed, but for beef cattle nearly equal to good hay, acre for acre. The trouble is we allow the fodder to get dead ripe before it is cut; better pay $2.00 per day and have it cut early, than 50 cents after most of the nourishment is out of it.

Economical feeding means economical farming, tho' one hinges on the other, and economical farming means keeping the ground covered, and with growing crops, the year through. We invest our savings, or surplus, in securities that pay every six months, summer as well as winter, then why not make the farm do the same? It is a bank, and oftentimes a better one than we imagine.

FRANCIS SANDERSON.

Plains Farm, Baltimore Co., Md.

The Breeding of Grades as a Stepping-Stone for Beginners.

Initiatory steps in breeding commence, as a rule, by practicing with the higher male upon the female of low degree. It is not customary to refer to a man as being a breeder while he handles only what are understood to be unimproved cattle, but he takes rank as such whenever, through making selections, he essays to "grade up." It is a question worthy of careful consideration whether the man of moderate means, possessing at the same time only moderate knowledge of cattle in their better state, had not better begin in his new role as a breeder of grades. In taking up the breeding of grades he can hardly make a mistake, for even in this branch of breeding there is room for a display of genius, however faintly this may shine in such a field. Even the most unpretentious effort is likely to be followed by a manifest gain in quality and early maturity, and the lessons obtained in this way are indispensable to success in the higher lines of breeding. The issues of such an undertaking are marketable to a man's neighbors on short notice, opening up an avenue for retreat from the business if he finds he has no genius for it. If he finds he is in the right field, then he gains time for thought, and such experience as comes to him he gets cheaply.

If, then, it be "grading up" that the beginner first tries his hand upon, it is well to follow this initiatory undertaking in such a manner as to bring the highest results from the very start. This, because the principles that guarantee success in this lower down scale of breeding are identical, so far as they extend, with those that give success in handling animals of the highest type. A little reflection will convince any man, however superficial his knowledge may be, that two or three crosses upon slow feeding natives, by a moderate feeder, will accomplish no more than one cross by a bull of rapid fattening tendencies. This will be found, upon proper tests, to be as true as that a diluted acid will only slightly impart its taste to a given amount of water, while a similar use of a concentrated article, will, not occasionally but regularly, make an impression which one need never mistake or be in doubt about. So it is entirely safe to say that when a man uses a bull with only a moderate tendency to fatness—these remarks having application to the fattening breeds--he is, as compared to an animal with strong tendency in the opposite direction, using, so to speak, a diluted article, and the product will, only in a moderate degree, bring the results sought for.

At the end of a century of practice in the direction taken by these remarks, namely, from the date of Hubback's establishing the fact that many get, through the influence of the sire alone, progeny having a decided tendency in one direction, let us ask ourselves how often sires with fattening tendencies not well pronounced are used for the purpose of grading up, compared to the occasions where a sire is brought and used upon his well-established evidences of fattening tendencies, rather than merely upon evidences that he is from a particular breed by name, or from a particular family of a named breed. In no place is it more necessary to keep the eye steadily upon the individual merit, than in the breeding of grades. The lessons to be learned by experience in the breeding of grades, and to be used upon a thoroughbred herd, are plainly outlined upon the countenances and contour of the former, and the skill shown with the one will point quite unerringly to the probable success with the other. The earliest record in the direction referred to seems to start with Hubback, and if a man is not able at this late day to anchor to a lesson that took root so far back, with culminating evidence added during the years since, then better stop with the grade breeding.

Lessons in breeding for symmetry are as readily taken in, through grade breeding, as in breeding the highest type of a Bates or Booth. Careful preliminary steps are not so necessary to the man of means, because his money will hire talent and experience to do that correctly which his education and training are very far from fitting him for. There are questions which come up in the breeding of grade cattle, in every way applicable to the practice acquired upon the better types, if at a later period the breeding of these is entered upon. One of the most pointed and telling of these is the strength of family characteristics. The farm cow may have what of excellencies she has fixed upon her through a long line of descent upon a given homestead, and these peculiarities may be, and often are to a degree, as distinguishable and fixed as in the case of many pure breds—decidedly more marked than in some.

The measure of value in a given class of stock hinges largely upon the possession, through a long line, of characteristics that are generally popular. This may seem like an indefinite term, yet popularity attaches to things on account of their fitness, and if the breeders of grades will duly study the markets, they need be at no loss as to the character of bull they require to cross upon a miscellaneous lot of cows. The man ambitious to breed pure breds at a future time, will make no mark in the world as a breeder, unless he proves himself capable of "evening up" the general contour of a herd of grades, through making judicious crosses. In doing this there is an opportunity that no man of reasonably good judgement need fail to bring good results from. The growing calf present an ascending scale for observation, from which a careful student can glean considerable of value. In what direction? Simply that the grade calf grows away from the symmetry of its calfhood as it gets age, and it does this in proportion to the low position it occupies in the scale of grading up. On the other hand the pure-bred calf that has been in every way wisely bred, will add to its symmetry with each month of growth while a calf, and at a later period, with each year of growth while a heifer. Hence, between the high grade and the pure-bred there is not so wide a gulf as many imagine, and there is great fitness in the beginner's using the one as a stepping-stone to the breeding of the other. —*Nat. Live-Stock Journal.*

Hurdle Feeding.

A correspondent having asked the *Western Rural* if hurdle feeding is practical in Iowa in sheep husbandry, it says, that it is practical anywhere, where the hurdles can be had, but in most portions of the West, under our present system of agriculture, it is not necessary. Hurdle feeding is in some respects like soiling in its effects. It gives the grass of the portions of the field from which the hurdles are removed a chance to grow undisturbed. No doubt it is economical as compared to pasturing a whole field at a time. In those sections where land is not so plenty and cheap as it is in many parts of the West, it is a good thing. But in the West we shall never get down to such economy as hurdle feeding embodies until our farms are smaller in size, and it is more trouble for us to get along than it now is. The system does away with the necessity of a very large amount of fencing, and that in itself would be a very desirable accomplishment. But there must be thorough reform before fences can be dispensed with. While a part of the community would as soon that their stock would run in the highways as to have them decently taken care of, everybody else must be to the serious expense of fencing against such stock. Hence, we must have fences; and, consequently, one of the great reasons for adopting the hurdle system is in operative. If we were all farming closely, that is, if we were striving to make every acre under our control produce the most that it possibly could produce; if we were determined to have nothing about the farm that was not utilized, a hundrd rods of hurdle fencing would prove to be a very valuable addition to the fram. With such a fence it would make no difference where or what a piece of pasture was, it could be utilized if we wished to utilize it. A piece of stubble or aftergrowth could be very readily enclosed, and hurdles could be removed, until as one advocate of the system puts it, every part of the field has been pastured, and the grass turned into meat and wool. The hurdle is especially convenient with sheep. They are not difficult to confine, and they may be confined until not only the grass of a certain spot is eaten, but also until they have fed close enough to destroy all the weeds.

As to the form of a hurdle fence anything will answer that can be set up, and will confine the sheep after it is set up. Many men could devise a fence without much cost that would answer the purpose. There are hurdles that are placed upon rollers and are rolled from place to place, as the sheep need a change of pasture. Of course this is the most convenient, and it is said that their additional cost is not very great. But of this we do not know of our own knowledge. Alderman Mechi, of London, made use of an iron hurdle placed upon wheels. This was very durable. A hurdle made of iron was in use upon Mr. Mechi's farm for thirty years or more. But it cost six dollars and thirty cents per rod, and that would rule it out in this country. We can conceive no circumstances, however, at present, under which we should think that hurdle feeding was necessary in Iowa.

But we will say, while speaking upon this subject, that it is a method well worthy of adoption upon poor and worn out farms. If the *Rural and Stockman* has among its Eastern readers any who are on such farms, we invite their attention to the value of small flocks of sheep upon such farms, and would recommend the hurdle as being a good means of making the feeding of sheep more practical on the average farm of that character. When a field has been long cultivated, and has in consequence been reduced to what we call a worn-out condition, it is frequently very difficult to get it seeded down, unless the application of manure is very generous. But poor farms do not have much manure, and the owners of such farms are likely not to have much money with which to buy manure. But sheep will manufacture the necessary fertilizer directly on the spot and pay for the privilege of doing it. A field could be sown to oats and then pastured by the sheep, which, if they had a small grain ration, would make good growth and fertilize the field at the same time. Some of our best known Eastern flock-masters have had great success in bringing up exhausted farms in this way. The sheep may be fed as generously as we can afford to feed them, and it has been demonstrated that they will pay for all the grain and labor, besides fertilizing the land. These exhausted farms are usually small, varying from fifty to a hundred acres. They would not support much of a flock and the hurdle would be a necessity. But all the sheep that they will support ought to be put on them. There are hundreds of farms in the East and South that can be bought for the little that could be brought into a good of state cultivation.

Feeding a Few Steers.

It is gratifying to see how the animal industry branch of agriculture is making steady progress, even in the older States. There was a time when the farmers of the Middle and Eastern States despaired of being able to compete with the West in growing beef, even for their own local needs. But as they have studied this question more closely, they have learned that the old system of slow growth, by which a steer was brought to a weight of 900 or 1,000 lbs. in three years, must be abandoned; that the steer must be matured for market at 24 to 30 months of age, and that this is done at a less cost of food than was formerly expended on the store steer at three years, while the present well-fed and early-matured steer brings 50 per cent. more money.

They thus find that under the improved system of feeding, they get better pay for their food and labor than when the West was not competing in their markets. Besides, they find that dairymen can raise a good calf as cheap in New York as in Illinois, and that it is only during a few months feeding on grain, at the finishing up of the steer, that the Western feeder has much the advantage.

In some districts at the East, a good demand has arisen for beef 18 or 20 months old, averaging about 1,000 pounds, and bringing $50 to $60 per head. The feeders say this pays even better than dairying; that they get quite as much, or more, for the same amount of food, besides saving a good deal of labor. There is growing up among dairymen in favorable localities the idea that they had better divide up dairying with young beef feeding. In this case they keep, say, 12 cows instead of 20, and raise their calves to feed off for young beef, save the labor of milking the other 8 cows, and get quite as much money for the years operations. This has also the good point of producing an income at nearly all parts of the year, from the dairy through the summer, and from young beef in early spring, and sometimes at other periods in the year.

This brings into the best use the refuse milk of the dairy, and turns it into cash. The farmers, in having from 6 to 12 young beef animals to feed every winter, and knowing that their value at 18 to 20 months old, will be just in proportion to well ripened weight, soon learn the necessity of feeding them in the best way to produce rapid growth. They find that liberality is strict economy, and that the most generous feeding produces the largest profit. We know some instances where dairymen, who have fed a few steers for several years, have also learned that the most profitable dairying is found with the most liberal feeding. They find, also, that feeding the cows well, when dry, will improve the calves which they are to raise, as well as increase the production of the cow through the season.

We hope this plan of raising a few steers, each year, will grow in favor till the bad custom of dairymen, in some parts, of deaconing or killing their calves, on being dropped, will be abandoned for the better plan of raising them for beef. Under this system, all the small local markets of the Eastern and Middle States might be well supplied. This would also have a very decided effect in improving the soil of those States. It would largely increase the amount of manure applied to the farms, and, in this respect, would be imitating the system of beef raising in England, as there almost every farmer raises a few young beeves. Every calf is there most scrupulously kept, and is considered worth $10 at a few days old. But in New York, probably, 300,000 calves are killed and skinned and thrown away by dairymen every year. This is a wicked waste, and should be reformed altogether. They should be grown into one hundred million pounds of good beef.—*Nat. Live-Stock Journal.*

The Sheepfold in Winter.

The most important point in the successful Winter management of sheep is to begin with young, strong and healthy animals. The natural life of a sheep is shorter than that of other domestic animals. At five or six years old sheep pass their prime. Unless the flock is annually weeded out, always rejecting the poorest, it rapidly deteriorates, and all chance for profit is destroyed. It is true of all poor stock that it is never profitable, and it is especially true of sheep, albeit a dead sheep is not a total loss, its pelt and wool paying something.

The second requisite in profitable wintering of sheep is warm and dry quarters. Without these it is not possible to winter sheep successfully, especially in the Northern States. Wet weather injures sheep more than other stock, because the wool of these animals holds water a long time, and its slow evaporation chills the animals, as wearing wet clothes will take away bodily heat from individuals wearing them. Even in Southern climates protection of sheep is necessary when heavy rains fall, though the wool of sheep is a safeguard against injury by dry cold or from cold snowstorms.

At this time, owing to low prices of wool, a flock of sheep can be advantageously bought by many farmers. It is a good time to go into the business for those having the proper facilities. Young sheep should always be bought, whether the object be fattening or breeding, but the feed in either case will be essentially different. Too much grain, especially corn, is an injury to breeding ewes. It causes a heated condition of the body, which loosens the wool, besides making the lambs less vigorous and healthy. For farmers who have clean, bright straw, with well-cured cornstalks, little hay or grain will be required for breeding ewes. Towards the time of weaning a little green food in the shape of roots will be needed to stimulate milk production and a condition of the system that will make parturition less difficult. The over-feeding of breeding ewes, especially with grain, will make the progeny poorer by stimulating excessive fatness, and will also make it more difficult for ewes to drop their lambs.

November is the month in which the buck is usually turned in with a flock of ewes for breeding purposes. If the farmer has not a supply of roots or ensilage for late Winter feeding the coupling had better be delayed until December. There is no advantage in dropping lambs during cold weather unless an abundant supply of green food is provided to stimulate the production of an abundant supply of milk. A stunted early lamb is less salable in June than one dropped a month later that has had from the first warmth and generous food. As soon as young lambs are old enough to eat they should be supplied with hay and grain, limited to the amount they will eat up clean.

The feeding of sheep and lambs for fattening requires a skill which it is impossible to gain except from experience. The chief danger is in surfeiting the fattening stock, impairing the digestive organs and wasting the grain fed. This is a difficulty to which beginners in sheep husbandry are most liable, especially when the animals are in thin flesh and when corn is the principal grain used. There are sometimes lots of well-fattened wethers that will eat corn almost like hogs without danger of injury, but this is very rare. With ordinary sheep not more than one-half pound corn per day, and this divided in two parts, morning and night, should be given at first. They will probably eat this clean, and if they do, as they begin to gain the amount of grain should be very gradually increased, giving a noon feed of roots to help digestion.

It is important that grain feeding of sheep intended to be fattened should begin early while they are still able to get some green food. A small quantity of oats given once a day will put the sheep in good thrift and make them much less liable to injury when the heavier feeding begins. Oats are better than corn because more bulky in proportion to weight and containing less oil. Many experienced sheep feeders give a mixture of oats and corn through all the period of fattening, although oats by weight and by chemical analysis are generally much the dearer grain. Where roots can not be had, bran added to the grain, and all fed dry together, will help to keep the digestive organs in good working condition. In fact, bran is excellent feed for sheep in Winter whether they are intended for breeding or fattening.

With a basement barn and plenty of bedding, grain-fed sheep will work down a large straw stack into very rich manure. Their droppings trodden incessantly into the straw in their pens will heat enough to injure the sheep unless the basement is cleaned out three or four times during the Winter. If piled up outside the door of their pens these heaps of sheep manure will not freeze in even the severest weather, and in two or three weeks will ferment sufficiently to destroy such weed seeds that may be present. The excrement of sheep, both liquid and solid, is better mixed in the manure pile with its bedding than those of any other animal. It is this fact and the grain fed to fattening sheep which explains the great value of the manure pile which they leave to the farmer who adopts sheep husbandry as a branch of his farm economy.—*Am. Cultivator.*

Abortion Among Cows.

When cattle are gathered together for the winter, especially if in considerable number, within sight and scent of each other, the first symptoms of abortion must be promptly noticed, and the affected animal removed; and if the casting extends, all the animals that have been together with those first affected, should be, if possible, separated and diposed singly, or in small numbers, about any spare outbuildings or sheds that may be available. This separation greatly lessens the risk of wholesale abortion. Disinfectants or deodorizers should be used with judgment and caution. We have known a stock keeper, in time of epizootic, steep cloths and sacks in a powerful disinfectant and hang them all about his cow-houses, so that the vapor filled the buildings. The result was (and this, by subsequent experiment, was clearly traced to the incautious use of the disinfectant,) abortion throughout the entire stock of cows, scarcely one carrying her calf the full time. Whether that particular disinfectant contained anything which acted on the womb, or whether, as we think more probable, the cows were nauseated by the smell (for we know how intensely sensitive cows are to nauseous smells), is a question we are unable to determine; but the connection of cause and effect between the excessive use of the disinfectant and the calf-casting was fully demonstrated. The rough driving, hurrying, and overcrowding of housed cattle turned out for water or exercise in winter, are sometimes causes of abortion; but here the fault would rest with the servants in attendance upon the cattle, and servants, unless known to be perfectly trustworthy, should never be far out of range of the manager's eye.—*Nat. Live-Stock Jour.*

FEEDING PIGS.—Surely it will pay farmers to study closely everything relating to feeding pigs, improving their pens and their rations, so that 300 lbs. may be reached at the earliest date—never going much beyond 300 days—marketing the pig as soon as he reaches that weight. We have feeders who have no difficulty in reaching this weight at this age, and they are satisfied with the profits of the business.—*Ibid.*

The Dairy.

DAIRY TOPICS.

(From Farm, Field and Fireside.)

A Dairy of Common Cows.

If we visit a dairy for observation the most striking feature is the fact that a majority of them are made up of common cows. In using the term common, we include not only the scrub native but also those cows that, though somewhat above the average, are unknown to the dairymen so far as the breeding is concerned. The pretext for this is that dairymen can better afford to buy cows than to raise them. Calves and heifers require room in the stables, and the dairymen are more disposed to utilize such space with cows in full flow of milk rather than to keep young stock, they believing it a more economical method of doing business.

If those from whom the cows are purchased should take the same view of the matter as the dairymen, the animals would soon realize a price that would place them beyond the reach of those desiring them for the dairy, but the breeders of such cows find a profit in keeping calves in order to sell them at maturity to the dairymen. What is the consequence of this mode of conducting a dairy? It is that the dairyman keeps twice as many cows as he should do in order to derive a quantity that may be procured from a smaller number. If the yields from any two dairies are compared it will be noticed that the product of one is different from that of the other, for it is an impossibility to collect a herd of common cows of uniform quality, and even if the yields from the two dairies approximate a certain amount, a difference will be created by the methods of management, as no two dairymen follow the same rules. In purchasing such cows it is all guess work, as they must be taken solely upon the honor of the dealer, and until tested the dairymen cannot tell whether he has a bargain or not. Fortunately, our common stock of the present day is better than that of a few years ago, but it is due solely to the infusion of an occasional dash of thoroughbred blood.

The cow that occupies a stall two years, and gives only one-half as much milk or butter as would a first-class animal, is more costly than the cow raised from a calf, for she will have not only occupied the stall a year without profit, but also entailed an expense of perhaps $50 in her purchase. If dairymen would consider that by breeding their own stock they could save expenses and secure larger profits, they would no longer fill their stalls with unprofitable cows. Let us make a calculation to demonstrate that it is not profitable to buy cows, instead of raising good stock. It must be a good common cow that will give 30 pounds (about 15 quarts) of milk daily, but the grade Holsteins have been known to yeild 45 pounds. If, in the period of seven years, a Holstein is produced on the farm she requires about two years for growth before coming in, while the purchased cow, being ready at the beginning, gives milk during the whole seven years, while the Holstein is in use only five years. Yet, from the time the Holstein comes in, though occupying the stall two years less time than the native, she will yield a larger quantity of of milk on the average, or, to put it plainer, she will give more milk in five years than the native will in seven, while her value will be much more. If we extend the period to ten years the difference will be still greater, and it may be added that she will also give a larger quantity in proportion to food consumed.

The common cows may be easily improved by the use of Holstein or Ayrshire bulls and consequently the improvement will not be very expensive. Unless butter is the object the average dairyman has no use for Jerseys

or Guernseys. He desires milk and should breed for it. There is but very little profit in dairying as long as reliance is placed upon the cows that are picked up and hawked around the country for sale to dairymen. The majority of such cows have vices, which is sometimes the reason they are sold, and these vices are not easily discovered until the cows are put to service in the dairy, when they are either sold at a sacrifice or kept for want of something better. Improvement in dairy management should begin with the stock. If the cows are of the right kind many difficulties may be avoided.

Churning and Working Butter.

On every farm butter is made, but every farm has its own system of manufacture, the butter being churned perhaps in the same manner on a majority of them, but the process of gathering the cream, the length of time in setting the milk, and the temperature at which the work of churning is done varies greatly. Bad butter is more common than good, and not because the farmers do not try to make good butter, or are careless, as has been charged against them since oleomargarine came into use, but because the appliances at the creameries enable better butter to be made now than was done formerly. It is the comparison of the farmers' butter with that made by the aid of superior modern improvements which places them at a disadvantage. Leaving out the separator, which separates the milk from the cream as soon as it is drawn from the cow, attention is drawn to the fact that at the creamery the principal implement is the thermometer, which is found in but few dairies. Without the use of a thermometer butter making becomes a work of chance. It may be good or may not, with the advantage in favor of a poor article.

Cream should be allowed forty-eight hours on an average during which to ripen, and thirty-six hours is sufficient for it to set before being gathered. Of course, where there have been several milkings the period of ripening will be longer, but the average should be as stated. It should be kept at a temperature of 55°, and the cream and churn should be about 64° when the churning is done. The common supposition that while churning the air must be forced into the cream in order to have the butter come is no longer accepted by experts, but the object is to agitate the cream in such a manner as to throw it against the sides of the churn in order that the force or concussion may separate the milk from the particles or granules of butter, which process, when completed, is all that is necessary. Churns are now constructed for that purpose which dispense with the dasher and other inside machinery, all that is necessary being to revolve the churn and allow the butter to constantly fall to the bottom. The buttermilk is then drawn off, the necessary amount of salt added and the churn revoled again, when the butter is then taken out. Often by this plan no after-working is required.

It is no injury to wash the butter with clear water. The flavor is in its oil, principly due to butyric acid, while the tallow solidifies it. As oil and water will not mix, the washing with water removes all traces of the milk sometimes without the necessity of working the butter. If it be necessary to work the butter let it be done by pressure against the side of the vessel, and not by sliding the paddle in it, as is done when a trowel is used for handling mortar. When churning, should the milk foam or the butter be slow in coming, try the temperature with the thermometer. If it be too warm or too cold in the churn raise or lower the temperature with warm or cold water. Look to the temperature carefully, as it may save a large proportion of the labor. Do not churn any longer than sufficiently to have the butter come, as the butter is injured by overchurning. When the butter appears it should be in the shape of small granules, about the size of grains of wheat, and should be at once well washed with cold water, salted and carefully packed away. Those who make butter pay more attention to the firmness of it than to the flavor, but it is easy enough to make firm butter without the delicate flavor which brings the highest price; the flavor is everything, for upon it depends the quality. After salting and placing the butter away there will be traces of milk in a day or two, which is easily removed by a second working. If preferred, the butter may be placed away without salting by pouring brine over it. One ounce of salt is sufficient for a pound of butter, and as but few brands of salt are free from foreign substances only the purest and best should be used.

Poultry Yard.

Necessity of Bulk in Diet.

A constant waste and repair of all the bodily tissues belong to the normal condition of all healthy animal life. Certain portions of the food taken into the stomach are in some way, not fully understood, absorbed and used for supporting and sustaining the entire system. Other portions seem to have no such office to perform, but pass from the stomach through the alimentary canal and are taken up by the scavengers of the body—the intestines—and discharged as useless, and worse than useless, matter. And we learn from these facts that supplying mere aliment of the most condensed and nourishing sort, and in quantities just sufficient to support health, is not the true way to keep all their bodily functions in their best condition. It is just as necessary that the *waste* portions of food should be supplied as that the directly life-sustaining constituents should not be wanting. Hence, we urge upon poultry-keepers the necessity of giving something which, by its mere bulk, may help to fill the almost insatiable crop and the ever-grinding gizzard of the fowl, and while the needed share for general sustenance is being eliminated shall also furnish the waste matter, which is equally important to the well-being of the flock. For this purpose almost any coarse, bulky article, such as potatoes, fresh grass, common purslane, chopped apples, turnips, cabbage, or in winter, hay or rowen, will answer, and there use will make fewer demands on the meal barrel and the other expensive materials needed for the support of the poultry.—*Poultry World.*

Drainage.

Suitable means must be provided in our fowl-houses to secure protection from dampness of all sorts, if we would attain the highest returns from our stock. It is an easy matter to dig a trench and fill it with rough stone, laid so as to form a rude drain, and when we have done this we have furnished a better preventative of gapes, roup or cholera than can be found in the poultry *materia medica.*

Dampness is at the root of nine-tenths of the poultryman's losses of all sorts, either direct or indirect. Roup in fowls is the counterpart of diptheria in the human subject, and is contagious wherever found. Let a single roupy fowl be confined in a coop partitioned off from the main house and affording no opportunity for the transmission of the poison, save the atmosphere, and see how long it will take to infect every bird in the flock.

We do not, of course, lay the blame of the infection solely to the imperfect carrying away of dampness from the floors already surcharged with poisonous matter, but we can truly charge to that account a goodly share of the trouble. Proper drainage, although it might not have entirely obviated the necessity for an extended course of roup pills and minor remedies, would, by keeping the ground in a porous and friable state, have opened the way for the discharge of effete matter in its proper channel.

All this time, however, we have only been speaking of what may happen when the disease has once invaded the yard, and have ignored the greatest benefit of a drain—exemption from disease. Kindred diseases of men—diphtheria and typhoid fever—have been shown so clearly to be the sure results of clogged drains and sinks and the noxious gases that exhale therefrom, that all such forms of disease may be *a priori* considered to come from lack of proper means of removing active poisons beyond the possibility of harmful action. If this is true of a disease among members of the human species, is it not, to say the least, likely to be so with a similar cause affecting our fowl stock?

Security can be very nearly absolute when, to suitable ventilation of the fowl-house, we add efficient drainage. We may escape disease without a drain, but with it our chances are multiplied.—*Ibid.*

Cholera in Fowls.

It is now conceded that the best remedy for cholera, in severe cases, is hyposulphite of soda, four parts; boracic acid, two parts; mandrake root, one part; red pepper, one part; resin, one part; pulverized rhubarb, one part. The above is a combination of substances that have been tried and found excellent. Give each fowl a teaspoonful, and repeat every hour until relieved. It is a strong purgative, and as soon as the fowl appears better give it a few drops of tincture of iron in a spoonful of warm water.

As soon as it begins to eat, feed it at first on stale bread and milk, with a small quantity of the condition powder and tonic mentioned below. We must not omit to mention that we have known many instances in which a half teaspoonful of coal oil mixed with the same quantity of castor oil proved an excellent remedy.—*Poultry Keeper.*

Horticulture.

Answers to Horticultural Queries.

I thought I had told your readers very nearly all I knew about growing tomatoes, but I find that some of your readers in Anne Arundel and elsewhere want me to write more about them. J. W. S. asks what variety I would plant "*to force*," and how early I would sow the seed. If Mr. S. means by "*forcing*," the forwarding of the plants for later planting outside, I would answer that I prefer the Acme and Canada Victor for this purpose, and I sow the seed the last week in January. If by "forcing" he means growing the fruit under glass for ripening in winter, I would answer that I should use only the Acme, and that I should sow the seed August 1st, and plant in the forcing house in September or would take cuttings from plants growing outside and root them about the last of August. The cuttings will give fruit sooner, but my impression is that the seedlings are the best plants. Mr. S., I think, refers only to the forwarding of the plants for early fruit outside. He says he has some sandy slopes on very warm hillsides, but says his crop has always come in when there was a glut, and therefore brought no profit. He is willing to take a little extra trouble and try my plan for forwarding the plants. Now in the latitude where Mr. S. resides, and with warm soil on southern hillsides, there ought to be no difficulty, if proper conveniences for forwarding the plants are used, in getting tomatoes ready for market from June 20th on; and I have never yet seen a season that tomatoes did not pay to ship to Baltimore up to the end of July.

The sashes needed on the cold frames for hardening off the tomato plants in spring can be profitably employed during the winter in various ways. Young plants of violets set in those frames in August or September will furnish flowers for cutting all through the winter, and can spare the sashes to go on extra frames April 1st for the tomato plants. Pansy seed sown in July and the plants set in the frames in October will also give an abundance of flowers in the winter, and both of these are rapidly bought by Baltimore florists. Tennis Ball Lettuce, from seed sown September 1st, can be planted 50 plants to a sash and can be nearly all cut out by April 1st, or sooner. After the tomatoes are out of the frames they can still be used to forward egg plants that have been kept in pots ready for this purpose. Put two egg plants to each sash and keep the glass over them, airing, of course, in sunshine until the weather is quite hot, and you will have them a great deal earlier than those set out doors early in the season. Then in the early autumn a hot-bed sash and frame is the best of all contrivances for rooting cuttings, which every lady wants to do of favorite window plants. For instance, September 1st take a frame large enough for one or more sashes, spread in it about three inches of clean, sharp sand. Dampen this and pack it down firm and hard. Mark lines in it with an old knife blade, and in these cuts insert cuttings of such geraniums as you wish to root. Give them one good watering and place the sash over, first placing strips across the frame so as to elevate the sash an inch or two and allow a circulation of air all around. Then give the glass a good coat of whitewash and do nothing more to them until October 1st, by which time the cuttings will usually be well rooted, better in fact than they could be done in most propagating houses at this season.

In regard to varieties of violets for winter bloom, I would advise my Anne Arundel correspondent to use the Marie Louise with a few of the new Swanley White for trial. In regard to peaches, the experience of the largest growers on the Peninsula is decidedly in favor of clean but shallow cultivation.

In our heavy soil (a bad one for peaches) I am not satisfied that culture in grass is not as good for the peach after it comes into bearing as for the pear and apple. The list given by my Anne Arundel correspondent is a good one, though, I think, there are better sorts at the same season than *Early* Crawford. I should add to his list Ringgold's Heath Cling, a superior sort well known in Kent. The newer early peaches are "a delusion and a snare." Plant the Troth for earliest.

The question as to whether my correspondent can make the growing of flowers for winter cutting for the wholesale trade profitable or not is too difficult for me to answer. There are many men making money by selling cut-flowers at wholesale, and there are also many making money in many other industries. As a general rule, no man can make money in any business unless he has had experience in it, and the growing of flowers under glass is by no means an exception to this rule. A man, fond of horticulture, by beginning in a small way and increasing as he gained experience, will usually do well at it, but no amount of energy or pluck will make up for the lack of experience. I therefore advise all beginners in commercial horticulture to go slow at first.

In regard to roses, my advice to Mrs. J. W. is to buy roses only in pots and from her nearest florist. Don't throw your money away on the imported budded roses sold by travelling peddlers in spring in a dormant state, or often dead state, with their roots bundled up in moss. Go to a florist you know and buy pot-grown plants on their own roots, or, if no florist is convenient, give your order to a dealer whom you can rely upon to furnish such plants.

I hope your readers will excuse the hurried manner in which I have answered their inquiries. If not satisfactory, I will be happy to reply further in your columns to questions of general interest. W. F. MASSEY.

Towson, Md.

Grape Rot—What is It?

Messrs. Editors American Farmer:

Much has been said and written in the attempt to solve the mystery of "grape rot," but nothing as yet to my mind has proved a satisfactory explanation of its cause and widespread destruction among the vineyards of the country.

Grape growing in this section has become an uncertain business of late years owing to this trouble. That it is a *disease* is a most plausible theory, demonstrated by both experience and observation. When once established in a vineyard it comes to stay; for how long we are not prepared to say, but from the present outlook it will be some time before it runs its course. Nor can I locate the seat of the disease, but am inclined to the fungus theory, which is to say, that the contagion is carried by minute spores of fungus from diseased to healthy vines, and, settling upon the berries, inoculates them with the poison which eventually causes their decay. Every one who has seen "grape rot" knows that it appears first as a minute black speck, no larger than a pin's point, which "speck" gradually spreads until it covers the whole grape. If the rot was caused by heavy rains beating upon the fruit, as claimed by some, *every* berry upon a cluster would be effected, but as a rule, part of them escape, except when the rot gets a foothold, as in one of my oldest vineyards. One writer in your columns, upon whose judgment I place great reliance, recommends "bagging" as a partial remedy against the trouble. This is a point in favor of the *fungus* theory, as the bags form a sort of shield against the poison-laden atmosphere around the clusters. But bagging, be it ever so beneficial, will not pay for the extra expense and labor necessary at the low price of grapes the past few seasons. A writer in the *Monticello Farmer* designates it as "water rot," "caused by an excess of water in the soil at a time when the grape is susceptible to influences from any unusual surroundings." He takes the ground that "the vine has more water in its veins than is necessary in the composition of fruit food." He recommends "thorough under draining of the soil by tile and subsoiling, or the selection of sites with natural drains cut off from the headland water shed, thoroughly subsoiled and, last but not least, the preservation of the main features of the vine in dormant pruning, and no other summer pruning other than superfluous parts." We might become a convert to such a plausible theory, but in looking about us, we see the lack of proof; while some vineyards around me were a total failure from rot, others escaped almost entirely, although the same amount of rainfall came upon all, and the land was rolling, porous, and given similar treatment. Grapes left *unpruned* through the "summer months" rotted as badly as those close pruned; different soils and subsoils made no difference with the rotting; high, rolling, exposed places in the vineyards suffered nearly as much as low, flat locations; bone and potash applied in heavy quantities to "supply needed elements deficient in the soil" all failed of their purpose, and the result of all our labor and hopes was a withered, ragged collection of beautiful clusters—that might have been. Grape rot was something unknown in this locality ten years ago, in fact, there are farms near me where it has never yet appeared; and Concord grapevines, twenty years old, unpruned and neglected, bear large crops of beautiful fruit each year. Does this look as though climate influences, lack of potash in the soil, heavy rains, water-soaked soil, system of pruning, age of vine, or the other half dozen causes put forward, other than the fungus theory, is the true cause of rot? I call to mind the Ohio grape-grower who carefully collected all the fallen leaves and other rubbish left in his grapery and burned them, and the following year was not troubled with the scourge. A neighbor, emulating his example in part, collected the leaves and litter of *his* grapery and *used* it for *bedding* his hogs and cattle, manured his vines with it the following spring, and was troubled with rot as bad as ever. May not the first have destroyed the germs of the disease, and the latter only favored their formation? Will somebody please help us out of the woods in the matter; I am no scientist and am anxious to have more light upon the subject from some of the readers of THE FARMER.

R. S. C.

Harman's Md.

Early Cabbages.

Said one of the largest growers of vegetables for the Baltimore market to me a day or so ago: "The dry weather has made our cabbage plants very late and they are quite small; Mr. Henderson charges $5 per 1,000 for good plants to winter over. Do you think these small plants will come through if transplanted into frames?" I assured my friend that I thought they would if set deeply enough to protect the stems well, and we separated. But the question set me to thinking again over the whole subject of early cabbage and cauliflower. I became satisfied a good many years ago that the practice of sowing cabbage seed in autumn for early spring cabbage was a waste of time, seed and labor, and that much better results can be obtained from seed sown under glass with a moderate degree of heat about the first of February, and the plants kept growing in a healthy manner from first to last, than can be obtained from the stunted and frosted plants wintered over, either in frames or on ridges. Years ago I grew annually many thousands of plants in frames during winter from fall sown seeds, because there was a demand for such plants, and I was growing plants to meet the demand, but for my own sowing I always preferred plants started in green-house or hot-bed in February. About twenty years ago a friend of mine, an old market gardener, had planted his Early Yorks as usual on the sides of sharp ridges for wintering. I had just gotten a new garden and was busy until late in fall getting green-house and frames finished, and let the season for sowing go by. Not to miss the cabbage crop entirely, I sowed early in February on a slight hot-bed, seed of Early Winningstadt cabbage. By the first of March the heat had waned until my hot-bed was but a cold frame. The plants were given plenty of air, and by the middle of March were ready to go out. They were set in freshly-worked and heavily-manured soil, and were in a strong, thrifty growth before my neighbors' plants had recovered from their winter's freezing, and begun to search for the manure that had largely been washed out of their reach during the winter. The result was that before the first of June I had good heads of Winningstadt cabbage, while my neighbor had no heads even of Early York. This incident led me to experiment further until I became convinced (and I believe the leading growers at the North now are) that the best success with early cabbage is to be had from plants started under glasses and set in fresh land as early as possible in spring. This shows the great importance of fire-heated pits or greenhouses to the grower of vegetables for market. In one of these low, narrow houses the cabbage plants can be grown in soil on the benches in February, using as little fire heat as will keep them in healthy growth and giving plenty of air until the plants are made hardy and ready for the open ground as soon as it can be well worked. The pit for these hardy plants should be constructed so that the sashes could be entirely removed for a while before final planting out. The day is not far distant when these fire-heated pits, when work can be carried on in any weather, will entirely supersede the cumbersome, inconvenient and expensive hot-bed made with fermenting manure. No one who tries this method of growing early cabbage plants ever again go to the trouble of sowing seed in autumn, in this latitude at least.

W. F. MASSEY.

How to Keep Winter Apples.

Theoretical fruit growing with me is a thing of the past, and after fourteen years of practice, in which time I have set out and now have growing two hundred acres of different kinds of fruit, it is very reasonable to suppose that I have learned something by this time. It is not a pleasant fact to a fruit grower to have a nice lot of fine, highly colored, good eating and under proper circumstances good peeling apples, and such as would bring a fancy price in January or February, to rot or freeze for the want of a suitable place to keep them.

Repeated failures to keep my apples until the market was good convinced me that apple growing as a business here in the South was a failure unless we could overcome this difficulty. Now, as I had invested largely in the business, and having several nice, vigorous young orchards, all of winter apples, on land worth from thirty to fifty dollars per acre, I must devise some way to keep them until late in winter or spring or give up the business. After repeated failures, and consequently a gloomy outlook for the business, and in order to keep the sheriff from the door, I was stimulated to investigate the causes of our apples rotting. The result of my investigation convinced me that the reason was twofold. First, gathering at the wrong time, and second, sudden and repeated changes in the weather.

The time to gather is just as the sound and healthy apples begin to fall. Careful observation will tell you when that is, so the first difficulty is easily overcome. The second and most important feature is not so easily overcome. I have two cellars on my place and neither of them is entirely free from the changes of the weather.

Knowing that the temperature of the earth did not change but twice a year, and then but a slight change, I concluded to build me an underground house or cave. So in the fall of 1882 I excavated a space eight feet deep, eight feet wide and sixty feet long. This I walled up and arched over with a nine-inch wall of brick. Over the arch I put a coat of cement, and over this I placed all the dirt from the excavation, and at intervals in the arch of four feet I built small brick chimneys or ventilators, which come out above the ground. I also made ventilators in each end. The door I put in the north end. The floor I also laid of brick. The cellar being completed, the next question is to properly store the apples in it so as to economize in space.

I had made several hundred slat boxes or crates, each to hold one bushel. These I carried to the orchard and left as many as necessary under each tree. The picker is provided with a small basket and a ladder, and is required to leave off his shoes or to wear rubbers; to handle the apples carefully, and to place them carefully one at a time in the boxes. The boxes are hauled in spring wagons to the cellar and placed one above the other up to the top, leaving a narrow passage down the center, so as to enable me with a lantern to examine their condition at any time.

The advantages of the slat boxes are many. The principal ones are thorough ventilation, economy in space and ease of handling; and when ready for market I just nail on a few slats on the top, and your apples are ready to ship, being much cheaper than barrels, and if the apples are highly colored they sell much better. The cellar being completed and filled I watched the experiment with a good deal of interest. I gathered the apples from October 20th to November 10th, according to the variety, and about December 15th I overhauled them, and less than one per cent. was unfit for market.

On February 1st I overhauled again, preparatory to placing them on the market. I found about two per cent. were unfit to ship, and this two per cent. was sold for more than enough to pay the expense of overhauling. The apples paid from one to two dollars and fifty cents per box, according to variety, size and color.

The temperature of the cellar varied but slightly. Durging the winter of 1882-3 the lowest was thirty-eight degrees and the highest was forty-seven, and the past winter, which we all know was extremely severe, the lowest was thirty six degrees. In order to test the cellar thoroughly, and in order to establish in my mind the long-mooted question as to which was the best keeping apple, I left one box of each variety untouched, except to occasionally pick out the decayed ones.

Of the eighteen varieties subjected to the test the following held out until June 1st: Red Mountain, Limber Twig, Ben Davis, Yates, Shockley, Turner's Green, Wine Sap and Wine apple, and the four varieties first mentioned lasted until the fifteenth or twentieth. The Ben Davis and Yates were the last to fail. It seems almost incredible for the Wine Sap, which is a fall or early winter apple to keep until June, but it is a stubborn fact. The Wine Sap should be gathered early in order for it to keep well.

Now, after the second winter's test, I am glad to say that the cellar has sustained its well deserved reputation, for up to June 1st I had seven varieties in a good state of preservation. To say that I am well pleased with my experiment would not express my real feeling, and as an investment it is a great success. It more than paid for itself the first season.

In addition to an apple house I use it during the summer months for milk and butter, vegetables, fresh meats, and for wine making. I think it will prove the right place.—*Cor. Spirit of the Farm.*

A Word for the Persimmon.

We are in the midst of our persimmon harvest, and feel that we ought to urge our readers to give space for a few trees of this very palatable wild fruit unless it grows as a native on the farm. Even then it might be better to have a few trees transplanted near the house for greater convenience. A former owner of the property we have purchased was sensible enough to leave three or four of these trees standing as he found them. They have been in bearing for several years and will continue so as long as we own the place.

We like the persimmon because it is good, being both palatable and healthy; because it bears every year and bears full, and because it ripens at a time when other fruits, excepting apples, are pretty nearly all gone. It is well worthy a place on any farm. The fruit sells well in our market. Put up in little paper cornucopias it is readily taken at a nickel a package, or at the rate of over six dollars a bushel. At half that rate the fruit would be very profitable.

In planting the persimmon it must be remembered that the flowers are dioecious, and male and female trees must be planted together for fertilization, and that there are a number of varieties, some being much larger than the others. Of two trees we have one which bears fruit more than twice as large as that of the other.—*Ind. Farmer.*

THE Mississippi valley produces 185,000 tons of cotton seed; the greater portion of it is shipped to Italy to be returned to this country as yure olive oil.

Experiment Station Notes on Seeds.

We give the following from the report of the N. Y. State Agricultural Experiment Station:

The question of climatic influence also is to be considered, for both soil and climate seem influential in changing the habit and quality, not so much the type, but perhaps this also, of the seedling. Until this matter of soil and climate influence becomes proven, or determined, we must expect no change in the seedsmen's methods in this respect, but yet some of the seedsmen already have commenced, and properly, it seems to us, to advertise seed of the growth of particular sections.

We have made no trials of "commissioned seeds" this year, as our trials last year seemed sufficient to condemn a system which is capable of so much abuse, and which, in the light of our mail and express facilities, seems unnecessary.

The bloom of the cabbage, fertilized with pollen of the winter radish, and also others with pollen of the ruta-baga, formed pods of full size, but devoid of seed.

In the Red Top Strap Leaf Turnips the seeds from the terminal blows were distinctly larger than those from the lower branches. A fair sized plant produces in all one and seven-sixteenth ounces of seed.

The terminal kernels of flint maize gave to our trials a stronger germinative and vegetative power than the central or butt kernels.

Flint corn harvested just at the point of glazing, husked and hung up to dry, continued the ripening process so that at last it would not be suspected but that our samples had thoroughly ripened in the field.

Peas planted when at the edible maturity vegetate as well as ripe seed.

A potato grafted on the tomato produced tubers above ground, just above the graft.

We received from E. H. Libby, of Rochester, a plant of Stowell's Evergreen sweet corn but twelve and one-half inches tall, well formed, of a vigorous green, leafy, and bearing three ears, two of which were well kerneled.

Beet seeds from one to fourteen years of age were tested. The percentage which germinated seemed to increase from 70 at one year to 88 at five years of age, and then decreased to ten at fourteen years. The fresh seeds began sprouting in one day, while four were required for the oldest seeds.

Cabbage seeds from two to seventeen years were tested. None sprouted over six years of age. The percentage which grew was good until four years, after which it dropped to eleven.

Of 117 samples of onion seeds one year old, 90 per cent. vegetated. Of 44 samples two years old, 68 per cent. grew. Of 11 samples three years old, 49 per cent. grew. Older than three years none sprouted.

The oldest seed reported as growing was cucumber at nineteen years. Fourteen per cent. germinated in two days.

Tobacco seeds at seven years germinated 36 per cent., but at twenty years none grew.

Of tomato seeds eleven samples ten years of age germinated 75 per cent., and two samples at fourteen years germinated 88 per cent.

In our trials last year we were surprised to find that the tip kernels of flint corn yielded more abundantly than did the central or butt kernels of the ear. Butt seed yielded at the rate of 62 bushels, central seed 62 bushels, and tip seeds 64 bushels per acre. From carefully tried experiments the conclusion is reached that tip kernels are in no wise inferior to other kernels for use as seed. Neither was the percentage of sound corn produced from selected small seed grains in any case less than from selected large grains.

The influence of weeds in a growing crop seems productive of injury, not only from their use of the food supply of the soil which might otherwise be appropriated by the crop, but as well from the shading of the ground and consequent lowering of temperatures.

Regarding the depth of planting corn, from one-fourth inch to eight inches, of 228 kernels planted at each depth, at one-fourth inch, 130 grew; at one inch, 149; at two inches, 148; at three inches, 135, when it fell proportionately to 36 at eight inches. When harvested there was little difference in the yield of sound corn from one, two and three inches depth.

The lines of distinction between Early Blood Turnip, Dewing's Early Blood Turnip, Improved Early Blood Turnip, Bastian's Early Blood Turnip, Hatche's Blood Turnip, and Simon's Early Beets are extremely obscure.

But little distinction was noticeable in many so called varieties of parsnips planted. Our observations would reduce the number of varieties to three: Long White Dutch, Hollow Crowned, and Round or Turnip Rooted, and all samples tested, although under many different names, properly belong to one or another of these three classes.

Attention is called to the objectionable features of the multiplication of synonyms in seed catalogues. Thus in the catalogues of eight extensive seedsmen, one variety of encumbers is found under as many variations of name. Such a use of names tends to reduce vegetable nomenclature to a farce, and such a revision of names as has recently taken place in pomology is strongly advised. It will probably receive the attention it deserves at the next meeting of the American Seed Trade Association.

Pruning Trees.

There will be no better time between the present and next autumn for pruning the orchard trees than now. The fruit is all gathered, the leaves have mostly fallen, and the trees are in a comparatively dormant state. Where limbs of considerable size are removed in November the remaining wood dries or seasons quite soundly without checking badly, especially if the wounds are brushed over with a solution of shellac varnish to keep out moisture. One who has recently been picking a crop of fruit from trees that had nearly twice too many small limbs will see the necessity now of a judicious thinning of the surplus top.

The same law holds good in the production of apples or pears as of grapes. Large specimens cannot be grown upon wood that is small from the overcrowding of the fruit bearing vines or twigs. Small twigs, small buds, and small leaves foretell small specimens of fruit invariably.

In pruning trees aim to distribute the cutting sufficiently throughout the entire tree. If there is twice too much top it might be reduced by cutting off all the branches on one side, and leaving the other half untouched. This might be a good thing to do in some cases, as where a tree is too near a division line and overhangs a neighbor's hog pen or pasture, but it is not the way to trim an ordinary tree. A tree that overbore this year, as very many trees have, will have very few fruit buds for next year's blooming, but will require a year of rest while new fruit buds are being formed, so in pruning now it should be remembered that the next crop of fruit will be grown wholly upon wood that has yet to grow. It will do to have a tree after pruning look quite thin, if the limbs are judiciously removed, for another year's growth will fill it up again, and perhaps make it nearly as thick and close as it is now. Instead of cutting out of a few large branches near the trunk, it is far better to cut out many smaller ones nearer the outer ends. This method will require more labor, but there will be fewer large wounds to heal over or rot away, and the tree will receive less of a check to its growth. A light saw set in a light iron frame attached to a long handle, like the handle of a hay rake, is a handy tool for thinning out the tops of trees. There are also shears attached to a pole, which are very useful for doing this work. Such shears are excellent for shortening in straggling growths, and bringing a tree into good shape. Long slender limbs are whipped about much more by winds than those which are reasonably shortened in. Growers of extra large pears and peaches long ago learned to restrict wood growth to just that amount required for producing the largest specimens.

Thinning fruit when the tree is over bearing is an excellent practice, but in the case of large trees it is a great deal of work. A better way is to thin the wood so that less fruit will set to be picked off in its green state. But pruning alone will not make a tree that stands in a poor soil bear fruit like one that is well fed with plant food suited to its wants. If a soil is very lean, stable manure will probably not injure the trees, but ashes and fine bone will give a healthier growth in most soils, and tend to produce fruit instead of wood. These may be applied now or in spring. A heavy dressing of manure applied late in summer may so excite action in the tree as to cause late growth to be followed by winter-killing. Peach growers are especially careful to avoid applying manure to their trees after midsummer, and some avoid cultivation after that date, letting the weeds cover the soil if they will. This is probably a commendable practice in some cases.—*N. E. Farmer.*

Growing Small Fruits for Market.

If there is no one growing small fruits for market in your place, why don't you do it? It is a paying business, and clean and healthful. You can make considerable money in raising berries for your market, if you would go at it. There is not another occupation that I know of which yields as much clear profit that can be started on so small a capital. And too, there is not another business so easily learned. Let me give you a few ideas how to make a start towards growing small fruits. In order to do this in the best way, I will relate the experience of a gentleman who was very poor, but who went into small fruit business and made a success of it. His place of residence was in a small town of about 1800 people. Adjoining were many rich farms, and land was plenty; the rent being about $5 per acre. His first move was to look up a good, reliable nursery from which to purchase the necessary plants. This done, and all arrangements made for a supply of the best and most reliable varieties of strawberries, raspberries, blackberries and grapes, the next step was towards securing the land. Being short of funds, the rule was to start at first on a small scale, so three acres of good land was leased for a term of six years, and the rent for the first year, $15, paid in advance. Then he portioned off about the following number of plants to set out the three acres: One acre was to go in strawberries, one in blackberries, one-half an acre in black raspberries, one-fourth in red raspberries, and the balance, one-fourth of an acre, to grapevines. Our friend had no horses, so he hired the ground broken in the fall. When spring arrived the land was plowed again, well harrowed, and marked out for the plants. These were very carefully planted at the proper distances, and then came the work of tillage. An occasional day's hire for a man and horse did the heaviest of the work, while his own arms and a good, bright hoe tended the balance. Between the rows of all the plants, excepting the strawberries, garden truck was put in, and tended along with the small fruit. When fall came the plants were found to have made a very fine and healthy growth, and there was a splendid crop of vegetables also. Part had been already harvested and disposed of at a good advantage, while the remainder was ready for a like disposal. Enough had been realized in this way to pay another year's rent in advance, buy a few berry boxes and have a little left.

In the village there was an enterprising grocer who had been a keen observer of our friend's fruit garden, and he made advances towards securing the crop for sale. Satisfactory arrangements being made, our friend, the grocer, made an offer. He would sell the fruit at a commission of 15 per cent. on each dollar's worth, if the grower wanted cash, or would pay full value—dollar for dollar—if goods were taken in payment for berries. Of course there would be only the strawberries to put in market the second season, but our friend had planned so well as to varieties, and given them such attention that the acre patch would yield a handsome crop.

A horse and light spring wagon were purchased on time, and then the second year's tillage was easily done, besides a conveyance was prepared for the transportation of the berries. Three young girls were engaged to do the berry picking, which, with his own help, was sufficient. Before the time came for harvesting the crop, there were many weeks allowed for cultivation, which was done mostly by horse. No culture being needed for the strawberries, the two remaining acres of other fruits could be easily handled and kept in good shape. To be sure there were many other matters to attend to, such as cutting back the raspberry canes, making berry boxes, and many other things, though everything being young and new, the bulk of incidental labors were light, culture being the greatest essential.

In the latter part of May the strawberries begin to ripen, and soon the berry picking came on in earnest. All this time the other plants were making a fine growth, and were not neglected.

The acre of strawberries turned out splendidly. The total number of quarts being 1800 and over. The first brought 20 cents a quart, then they fell to 15, then to 12½, and finally to 10 cents a box. All this was very satisfactory, and next year another strawberry crop, and a full crop from the other plants. Now, this is the way one man started, and he gradually increased his fields until he has twenty acres in small fruits alone. Any other man can do just as well and perhaps better. Think over the matter, my friend, and see if you cannot by this means better your condition.—*Cor. Grange Bulletin.*

Marketing Fruits.

It is all too common to see farmers bringing roots and fruits for sale in bulk, so that they must handle all over to make the measure wanted by customers, bruising the roots and mussing soft fruit so that it is hardly fit to look at, and no longer inviting to the eater. They could save themselves time and trouble, get better pay, and gain credit with their customers by taking all in measured crates or boxes in which the roots may be kept ready in the cellar for lifting on the wagon. A convenient size and shape of bushel crates is given as being 12½ inches square at the ends (inch stuff) with three slats on bottom and three on each side, of half-inch stuff, each 3½ inches wide, and 20 inches long—the length of the crate.—*Cor. Tribune.*

CRANBERRIES.—Reliable reports from the cranberry marshes are received, says the *Western Farmer*, and it is estimated that not more than a quarter crop will be harvested. Where marshes were covered well with water during the early part of the season, a fair quantity will be picked, but the fly has made havoc with some of them, which will lessen the amount of berries on the protected marshes.

Horse Radish.

The revolutions in methods of vegetable culture, inaugurated by the intensive agriculture of late years, have probably been more marked in the case of horse radish than of almost any other plant. As a boy, I knew the horse radish as a plant of little account, which grew year after year in a grassy corner in my father's garden. As I know it now it is a staple annual crop in all the market gardens in the East. As the plant is a perennial it was once supposed that it must remain in the ground at least two years to become matured. Some even let it remain for many years in one place, and broke off portions of roots as the demand required. Of late years the demand has increased wonderfully, and the canned product is now in stock in every grocery.

I find horse radish a good crop in several respects. It is easy of cultivation, it may be grown after early beets or cabbages, and it may remain in the ground until late in the Fall after most other work is done. It is propagated by pieces of roots or "sets." These "sets" are the trimmings of the larger roots taken off in the Fall when the roots are trimmed for pitting. They are usually about half an inch or less in diameter and five or six inches long. Usually the lower ends of these "sets" are cut off slanting so that they can be surely set right end up. If the lower end of the root should be set upwards the roots will grow downwards from this end, and will be scrawly and unshapely. The "sets" are usually planted in a slanting position with the upper end two inches below the surface.

A month after early beets or early cabbages are planted the horse radish sets may be put in. They are set in rows between the cabbages or radishes, and eighteen inches apart in the row. The roots will soon begin to grow, and in some cases I have found that they grew too rapidly for the cabbages or beets. In such cases I have cut off the tops with a sharp hoe, and they soon started again and apparently did not suffer from the injury. Any cultivation or soil which will raise good cabbages and beets will grow good horse radish. A rich loam is especially desirable. I have read of five tons of horse radish being raised to the acre, but my largest yield has, I think, been less than four tons. With that yield the crop has always paid me. I consider five to seven cents a pound, in bulk, a good average price.

Horse radish will make all its growth during the latter part of July, August, September and October. It grows until very late in the season. The large leaves keep down the weeds. When the plants have completed their growth, they should be dug. The tops and the smaller roots are trimmed off, and the roots are stored in pits in much the same manner as turnips. A layer of roots, two or three deep, is laid down, and over it is placed a little loose earth. Alternate layers of roots and earth are thus laid down, until the pit is some four feet high, when it is covered. Frost does not injure the roots, but I cover them a foot or more deep. The layers of earth will keep the roots fresh, and prevent them from heating. The trimmings or "sets" may be stored in the same way. At any time during the Winter a layer of roots may be taken out, washed and sent to market.

For home use farmers will find it much more satisfactory to grow horse radish in this manner, in preference to the old way of treating them as docks. Fifteen or twenty "sets" will yield enough for a family. Horse radish is a good and healthful condiment, and I believe that it should be more generally used. If the roots are not all removed from the soil there may be trouble from "weedy radishes" the next season. I therefore plow and harrow radish ground after the roots are harvested, and pick up or rake up the remaining roots.—*Cor. Am. Cultivator.*

Hardy Spring Flowering Bulbs.

The Chionodoxa, or Glory of the Snow, is one of the earliest of spring flowers, coming out with the snow drop. It is entirely hardy. It is also suited to pot culture.

The Anemones are hardy bulbs, early grown, and adapted either to cultivation in the house or to planting in the borders. They are both single and double varieties and all colors.

The Ranunculus is of many shades—white, crimson, yellow, etc. It is perhaps somewhat less hardy than other Dutch bulbs, and if planted in the fall should have a warm, dry, well-drained situation. Planted in early spring it succeeds well. It also does finely in pots.

The Ixias are of many colors and succeed admirably in pots. When planted out of doors they require extra covering.

CHIONODOXA LUCILLAE.

ANEMONE.

RANUNCULUS.

IXIA.

Dutch Market Gardens.

In the neighborhood of Amsterdam, writes a correspondent of *The Garden*, there are over 150 market gardens, in the greater portion of which such kinds of vegetables as it is usual to forward under glass are grown, while some are devoted exclusively to Harlcot beans, cabbages, and other things commonly cultivated as field crops. The Dutch market gardeners are a laborious, painstaking class, but seldom journeying far from home, are wedded to old ways, some of their appliances being of a very primitive description. Thus, for instance, the sashes of their frames are glazed with small squares bedded in lead, just like the old-fashioned casement windows, a fact which seems most strange, seeing that style of glazing garden frames has many years been quite obsolete in European gardens generally. The frames themselves are of a rough description, being formed of thick boards, being generally some eighty feet long and divided into compartments at need. Where ground is so valuable, space is naturally economized as much as possible, there being but about one and a half feet between each row of frames. Each market garden is surrounded by hedges and divided into two or several portions by screens or transverse hedges. In a level country like Holland, where there are but few natural breaks to the fury of the winds, some such kind of artificial protection is almost indispensable and especially where a large number of glass frames are employed. One or more of these compartments are occupied by the dwelling-house, sheds, cellars for vegetables, and frames; the remainder are devoted to the various kinds of crops which may be made a specialty of.

Some growers use as many as two thousand lights, from which three or four crops are taken annually. Thus at the commencement of the year they are filled with carrots, parsley, chicory, sorrel, leeks, either seedling or autumn-sown plants, lettuces for cutting in a young state, turnips for the sake of the stalks, celery and lettuces sown thickly, to be used as thinned out and for hearting. No heat is applied to such things at that time of year, the frames being merely a protection against the rigorous winter climate, which, as in Germany, does not allow of the employment of fresh green vegetables from the open ground at that time of year. Cabbages, turnips, celery, and such like, must all get some protection, or they are liable to perish wholesale. This accounts for the disparity in numbers between those who use glass and those who grow in the open air exclusively, for while there are nearly 150 market growers in the neighborhood of Amsterdam, very few of whom have not less than a thousand frames in use, there are not twenty who practice field culture. It will thus be seen that such a quick rotation of crops by frames is practicable; they are indeed, never empty, being employed in winter for the storage, as it were, of such things as cannot bear a Dutch winter, in spring for hastening salads and other things, and in summer for cucumbers principally. The growth of this esculent, indeed, forms an important industry in Dutch market gardens. The summer climate is propitious being just about as much warmer as it is colder than ours in winter, so that with generous culture heavy crops are obtained with regularity. Many of your readers will be acquainted with the "Dutchmen," as the Convent Garden salesmen call them. These are cucumbers of medium size, rather rough in appearance, but of fairly good quality, and which may be bought during the summer season wholesale at from nine-pence to one shilling three-pence per dozen. They are very superior to the ridge, but inferior to the English frame fruit; they seem, indeed, to be exactly intermediate between the two, and are a selection from the former or a cross between some frame kind and the ridge. Whatever may be the origin of this cucumber, it admirably suits the Dutch market-growers, being hardy, vigorous and free bearing. Were it not for these "Dutchmen," home-grown cucumbers would realize higher prices, but they come into this country in such quantity as to considerably lower the value of home-grown fruit. The winter crops above alluded to are followed by carrots, salads, radishes, leeks, celery, etc., which are brought along on hotbeds. Cauliflowers are also transplanted, one plant being put under each square of glass. Some of the lettuces are cut young; the celery is pricked out when large enough. Other lettuces are placed far enough apart to allow of full development, a considerable portion of the frames being devoted to this esculent. In the meantime other frames are being prepared for the cucumbers, the seeds being sown in the middle of each light where they are to grow—an excellent plan, as I myself have had abundant proof. Others are used in the same way as soon as they are free, so that by the beginning of summer quite two-thirds of the frames are full of cucumbers.

As each market-grower has on an average 1,500 frames, and there are some 150 of them in the neighborhood of Amsterdam, it will be seen that in that district alone about 150,000 frames are devoted to cucumbers. No wonder, then, that our markets are filled with Dutch cucumbers at this season of the year. Melons are also grown, but not to the same extent, as they are not so remunerative. When the cucumbers are sown, the remaining space is filled with spinach, radishes, carrots, sorrel, purslane, chicory, etc., which is taken off in time to allow the development of the cucumbers. Transport is effected by means of boats, which are loaded up in the washing-sheds situated on the borders of the canals, and which are towed to market by the workmen. Between two and three thousand boats annually discharge their cargoes at the quays. As is the case in the Paris market gardens, the great portion of the work is done by the family of the occupier, the wife and children washing and preparing the vegetables for market, but in the busy season the largest gardens occupy some half dozen laborers. Large as the amount of vegetable produce grown by the market-growers in the neighborhood of Amsterdam is, the supply does not suffice, over two thousand boat-loads annually arriving from other districts. These contain cauliflower, carrots, onions, turnips, haricots, potatoes, and fruits, not including nearly one hundred boat-loads of strawberries.

Heating Greenhouses.

William D. Philbrick, in an address before the Massachusetts Horticultural Society, said the heating apparatus best suited to the wants of the amateur, is the ordinary hot water circulation from a boiler about four feet below the level of the house floor, in a well drained cellar, at one end of the glass, and covered by a shed or office, which, being always warm, will be found a convenient workshop in cold weather. The boiler should always be a size larger than the pipe-fitters advise, to make sure of being sufficient. Much will depend upon the draught of the chimney; the same boiler will do twice as much work with a good draught as with a low and small chimney.

To maintain tropical heat in the compartment eleven and a half feet wide and nine feet high will require six or eight four-inch pipes, while the portion devoted to hardy plants will not need more than half as many. In heating much will depend on location and the shelter afforded by hills and trees on the north and west. The compartments on the north will require about four pipes, and in the portion devoted to the cutting-bench two will pass under the bench, and be so inclosed as to give bottom heat to the cuttings.

An abundant supply of water is almost as important as heat. If the public waterworks do not afford this, it may be raised from a well or cistern by a wind-mill, to a tank fifteen or twenty feet high in the loft of the

boiler-house. It is desirable to have it slightly warmed for tropical plants, which may be easily done by having the tank connected with the boiler by circulating pipes provided with valves.

If found convenient, the boiler and shed may be placed in the middle of the structure, carrying the heating pipes both ways therefrom. This is a more symmetrical arrangement, but this point will be governed in great measure by convenience as regards accessibility by coal wagons, drainage of the cellar, and nearness to the supply of water.

The internal arrangement will be best left to the taste of the owner, but any plant will thrive better in a bed where the roots can spread than if confined in a pot, but the confined condition of the roots favors early flowering; moreover, plants that are to be removed out-doors in summer are best potted. The pot, therefore, is a necessity, and is best kept from drying up by plunging to the rim in clean sand.

Such a house as has been described will cost from fifteen to twenty-five dollars per foot of length, according to the style and thoroughness of the work.

Some amateurs will desire only a small greenery of one compartment, attached to the dwelling house, and heated by a coil of pipe from the furnace in the cellar, or, where steam is used, by a steam pipe, and much enjoyment may be derived from such a structure. It must be partitioned from the house so tightly that it can be smoked without smoking the dwelling. A very convenient greenery may be cheaply made by fitting sashes between the posts of a piazza, to be removed in summer with all the shelves and pots. A heating coil of one-inch pipe, or a water-back in the fire-pot of a common furnace, connected with a system of circulation around the piazza floor, will suffice for heating, or if steam is used for heating the house, it may be very conveniently extended to the greenery.

For small greenhouses, detached from the dwelling house, the hot water circulation will be found cheaper and more satisfactory than steam, and far better than the old-fashioned flue, red-hot at one end and cold at the other, which is also a cumbrous affair and now little used. Steam has advantages where several houses are to be heated from one fire, since it is easier to divide and regulate the heat; but for so simple a structure as has been described nothing is so efficient and economical as a good hot-water boiler. The combination of flue and boiler is of much practical importance, the saving in fuel being balanced by the impaired draught and the danger of the escape of poisonous gases in the house to the destruction of its contents.

The Management of Chrysanthemums after they have been Housed.

The value of chrysanthemums as flowering plants for the next two or more months is well understood. How to make the most of them is not so well understood. They are very often well grown and well managed up to the time of housing, but then, from a variety of circumstances, are apt to be spoiled to such an extent as to cripple the flowering of the plants. They may be overcrowded, and they may be starved for want of water in sufficient quantity to keep up their vigor. In either case they will certainly suffer, and that very quickly. The ordinary results of either will be attacks of mildew, dropping of the leaves, and depauperation of the flowers, many of which will not open at all. Care should be taken to give the plants as much room as will ensure their having each plenty of light and air around them. Ventilation should be thorough and free. It should be remembered that the chrysanthemum is a hardy plant, one that is hardy enough to stand unscathed our hardest winters, but flowering naturally so late that the full beauty of its flowers can only be obtained by means of shelter under glass. But then shelter is all it requires; therefore, not only should fire heat be withheld, except for the purpose of driving off damp, but ample ventilation should be given both night and day, except in severe frost. The most important point perhaps in their management is watering. There is no danger in overdoing this; the risk lies all the other way. The pots are by this season of the year so crowded with roots that the mass of earth and roots is more like a seive than anything else. There is very little holding power in the soil; it is so permeated with roots, and the demand of the plants for water is increasing daily as the flowers expand. It is therefore necessary to increase the supply of water. Some say water daily; no rule can be laid down, but we should certainly say water by all means daily, and several times daily if required. The heavier the crop of bloom on the plants let the supply of water be the more ample; it cannot be over done. Liquid manure will be of great service to the plants now, and every alternate watering should be composed of liquid manure. The soil in the pots may be considered as exhausted, and the requirements of the plants have increased rather than diminished, so that concentrated nutriment must be supplied. One of the greatest evils that assails the chrysanthemum when it is housed is mildew. Deficient ventilation and deficient supplies of water are the principal causes of this pest making its appearance; anything, in fact, that tends to weaken the plant will induce an attack of mildew, and the first indications of it should be regarded with concern, for it is destructive, and very rapid in its results. The best means of suppressing the evil is to dust all the affected parts with flowers of sulphur, but the fault in the management that has led up to the attack should be corrected, so as to make the cure effectual. Insufficient ventilation or dryness at the roots may be reckoned upon, either one or the other separately or combined, as the cause, and should be guarded against by every means, and careful attention to the necessities of the plants.—*N. British Agrst.*

Preserving Vegetable Roots.

Few persons, except market gardeners, understand the best method of keeping vegetables through the winter. It is a leading branch of the business of these to supply at all times these vegetables, which as the winter advances command increasing prices. They can afford by the extent of the crops they raise to provide suitable buildings, or rather cellars, to keep these corps, and have a sufficient supply at all times to meet the market demand, and realize the high prices which are usually commanded late in the Winter and early in the Spring. But the small growers of these vegetables, though many in number, cannot incur the expense of providing structures in which to preserve these roots for their own use, and have, therefore, to shift the best way they can in feeding out the roots to their limited herds of cattle. Heat and moisture are the two agents which, more than others, are hurtful to vegetable roots in general. Keep them dry and as near the freezing point as possible, without positively freezing.

But, as a rule, we regard the keeping of these vegetables buried, or protected, out-of-doors, to be preferred to any other method. Turnips of all kinds, celery, cabbage, carrots, etc., by being carefully buried, not very deep yet sufficiently so to protect them from the rains and consequent freezing, will be longest preserved. Celery, cabbage, carrots, etc., are not injured by what may be called dry freezing; in fact, we consider celery to be benefitted by it. It must be understood, however, that no roots should be buried in large bodies, because they will of themselves produce heat, and, as a matter of course, decay. Better to be placed in small heaps, or in rows or ridges, covered with straw or cornfodder, with apertures leading to the body of them, stuffed with straw, which will admit of evaporation and naturally of the escape of the heated, or more properly of the impure air. We have found, however, by repeated trials that by covering these bodies of vegetables with boards, so placed as to shed the water, and the whole on an inclined surface thus preserving the vegetables in a dry condition, they will be protected against decaying better than in any other way. We have kept celery and cabbage to the end of April in a good state.

On some farms the cellars underneath dwellings, which are generally the extent of the building, are used for this purpose; but we do not recommend them. From the warmth of cellars vegetables will soon decay, and very frequently produce serious illness as well as causing an offensive odor. It would do no harm, however, to deposit there a small quantity of some of these vegetables for immediate use in the early part of winter; but all else should be placed in the open ground, after the manner suggested.—*Germantown Telegraph.*

Plants for Hanging Baskets.

Many make a mistake by putting too many varieties of plants in a basket. There are some plants that will bear crowding, but not all. Then there is a difference in plants as to the amount of water they require. Othonna Crassifolia is a splendid plant for baskets, even if planted alone, but too much water and shade will cause the leaves to rot and the plant will lose most of its beauty. Avoid this trouble and you will be greatly pleased with it. The Tradescantias are neat trailing plants, and the four varieties planted together form a fine basket. This plant will stand all the water you have a mind to give it. Vincas, of which there are several sorts, do well, but are somewhat slower growing, and most people want basket plants to fill a basket in a few months, and for this reason are not so popular. Some recommend Smilax for a basket plant, but we think they do wrong, as the plant must have a damp atmosphere to do well, and we all know that the upper air of the room, where baskets are generally suspended, is warm and dry, unless great care is taken to have a vessel of water constantly on the heating stove.

For a center plant for a basket, if you wish one, a Pilea or Cuphea does well. The former with its fine fern-like foliage always has a graceful appearance, but has the fault of being somewhat sensitive to cold weather. The Cuphea or Cigar plant, forms a pretty little bush and has the advantage of being almost always covered with very pretty and striking little flowers resembling a lighted cigar. The oxalis does well as a hanging plant, and a half dozen bulbs are not too many for a single basket.

If you wish but a single plant, we believe that the ivy-leaved geraniums are without a rival, especially L'Elegante, with its pale green leaves blended with yellow and carmine. They do not grow so rapidly as some of the vines, but their beauty lasts much longer. Fragaria or Mock Strawberry is also a very suitable basket plant. The Trailing Abutilon, Mesopotamicum, is a splendid basket plant, its pretty variegated foliage always attracts attention when planted with green foliage plants.—*The Western Horticulturist.*

The citron-scented plants are among the most favored and grateful to mankind, whether the Lemon Balm found in old gardens or astray by the wayside, and beloved by all the bees; Lemon Thyme, choicest of borderings; Cedronella or Citronella, pleasing even in barbers' essences; the Molucca Balm or Shell Flower, Lemon Geranium, and perhaps a dozen rarer things of kindred fragrance.

Selected Household Items.

When you have procured your food in the market, don't slight those for whom you provide by putting it ill-cooked upon an untidy table. Don't say that you haven't time to do better. Have the linen clean. See that the glassware is not only clean but that it shines. The same of the cutlery. Dirt is never necessary nor economical. If you can afford it, set the table daily as if you expected company. I knew of a family who always had an extra place at the table for any one who might come. If in the country, cut flowers or even potted plants are a beautiful and costless ornament. In the summer time keep the dining-room cool and free from flies. To this tidy table bring your own tidy presence. Too many housekeepers, worried and tired with the preparation of the meal, often approach the table in a costume and arrangement of hair that is not always an incentive to the appetites of other members of the family. The example to the rising members of the family isn't good. As far as possible discuss nothing at the table that may lead to disagreements or require much thought. Introduce no subject of conversation that may lead to a heated discussion. Fret and worry are foes to digestion. "Laugh and be fat" means "Laugh and be healthy." This is true. The want of proper cheerfulness leads to unhealthiness and leanness.

Work is good for all who are not invalids, and women are all the happier for being kept busy, so long as they do not overtax themselves. Many a woman, suffering from some great sorrow or domestic trouble, would sink into despair and perhaps the grave, were it not for the work she is obliged to do.

It is a misconception to regard the wife as a beneficiary or dependent of the husband, or to regard the money he gives her as a gift, for which she ought to be grateful. In spending it she spends only what is her own; for the woman who faithfully discharges the duties of wife and mother, does her full half of the joint work of man and wife, though she actually brings in no money.

A delicious prune pudding is made by stewing a pound of prunes till they are soft; remove the stones, add sugar to your taste, and the whites of three eggs beaten to a stiff froth. Make a puff paste for the bottom of a pudding dish. After beating the eggs and prunes together till they are thoroughly mixed, spread them on the crust. Bake for half an hour, or until you are sure the crust is done.

"My baby always wakes up peevish or crying, and always has," a mother said a few days ago. Her baby is now three years old, and has never once waked up in that happy mood which causes many a well-regulated child to lie and play with hands or feet, attracting his mother's attention by that wonderful accomplishment which we call "pat-a-cake." A mother may be sure that there is something wrong about her baby or its environment when it wakes up with discontent manifesting itself so plainly. Sometimes it is because its food is not digested, and often because the air in the sleeping-room is impure, and if baby could speak he would tell of a dull, troubled head and disturbed stomach. The cause ought to be diligently sought for by every mother, and be remedied, so that poor baby be no longer defrauded and kept from his legitimate rest and pleasure.

An abundant and wholesome supply of food, with as much variety as possible, is an important consideration of a well-ordered table, but it is quite as essential that it should be served in a refined, tempting manner, or its richness and abundance may be spoiled. An overloaded table served in a careless way, and the meal disposed of hurriedly instead of making it an opportunity for rest and a little pleasant conversation, shows a lack of refinement, and every housekeeper should be careful not to get into the habit of setting her table carelessly for the sake of doing things in the easiest way.

The American Farmer

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Maryland Horticultural Society.
Maryland Dairymen's Association.
Maryland State Grange, P. of H.
Agricultural Society of Baltimore Co.

BALTIMORE, NOV. 15, 1884.

The National Grange.

This body met in annual session at Nashville, Tenn., on November 12th, when Master Woodward read his address. Maryland is represented by Henry O. Devries, Master of the State Grange.

Chrysanthemum Show.

The Maryland Horticultural Society will have a show of Chrysanthemums on Wednesday, 19th instant, from 2 to 10 P. M., at the Academy of Music in this city. Prizes are offered for plants, cut flowers and designs made of these popular fall flowers.

THE CHICAGO FAT-STOCK SHOW.—This exhibition opened on the 10th instant, under very favorable auspices, and with an excellent display in the various classes. In our next issue we expect to give some interesting details of the competition.

MEAT CHOPPERS.—We call attention to the Enterprise Meat Choppers advertised elsewhere in this issue. We have made a trial with one of these machines and find it does excellent and rapid work, and we can commend them with confidence.

A Good Paper for the Household.

The Youths' Companion is a publication which deserves a place in every home; its contents providing something to instruct and interest all ages, pure in tone, of decided literary merit and beautifully illustrated. The price is $1.75, and Perry, Mason & Co., Boston, are the publishers.

The Improved Live-Stock Breeders' Association.

The regular quarterly meeting of the Improved Live-Stock Breeders' Association of Maryland was held on the 19th instant, A. M. Fulford, of Harford County, President, in the chair, T. A. Seth, Secretary. The gold medal of the association was ordered for presentation to Mr. G. A. T. Snouffer, of Frederick, for the best herd of beef cattle at the State Fair at Hagerstown. The President and Secretary were elected delegates to the conventions of cattle men to be held at Chicago and St. Louis this month. They were instructed to favor measures to secure legislation for the suppression of pleuro-pneumonia and other contagious cattle diseases, and to endeavor to counteract the impressions preventing in the west as to the prevalence of pleuro-pneumonia in this city, which is doing so much injury to our live-stock interests. Mr. Frank Sanderson, of Baltimore county, read an interesting paper on the economical winter feeding of cattle, which will be found elsewhere in this issue.

October Crop Reports.

The Department of Agriculture reports that the October returns of corn averages higher for condition than in the past five years, but not so high as in any of the remarkable corn years from 1875 to 1879, inclusive. The general average is ninety-three, and indicates about twenty-six bushels per acre on a breadth approximating 70,000,000 acres. The wheat crop will exceed that of last year about 100,000,000 bushels. The yield per acre will average about 13 1-8 bushels. The indicated yield of rye is about twelve bushels per acre, and superior in quality. The yield of oats is a little above the average, being about twenty-seven bushels per acre and giving a crop of nearly 570,000,000 bushels. The barley crop shows a yield of twenty three bushels per acre, and a total product of 50,000,000 bushels. The condition of buckwheat averages eighty-seven, and that of the potato crop eighty-eight.

Home Department.

Sunlight.

Considering that this is one of our most bountiful blessings and a free gift, we certainly appropriate it very indifferently for every day uses. While our houses are as liberally provided with doors and windows as may be consistent with comfort when wind and frost are searching for admission, these are so shaded and curtained as to defeat almost entirely the object of such provision.

The Great Giver of all good, knowing its value to the human race as well as to the vegetable world, "bestowed it alike upon the just and unjust," while we, as if resenting such equality, wage a continual warfare against it and seem bent upon accepting no more than is absolutely required for the purpose of seeing; on festive occasions we even go so far as to shut out God's glorious sunshine entirely and substitute the manufactured devices of man.

It is undoubtedly a cause for profound gratitude that the genius and skill of man has enabled us to supplement the light of the great luminary and thus prolong the hours of business or pleasure to meet the demands of civilization, but it is hard to understand the artificiality of taste that gives preference to gaslight or candlelight while sunlight is available.

The fact that sunlight transmits some element essential to life is plainly illustrated in the rapidity with which plants droop and die when deprived thereof. Whenever we have the chance to observe the effect of such deprivation upon a human subject the results are equally apparent. Because mankind can endure so much longer, and finds so many other reasons for indications of failing vitality, the true reason often escapes recognition, but when some misfortune confines a creature in a dungeon for any protracted period, the effect upon both person and mind are horrible. We might suppose that intelligent people who are well aware of these things would be the most particular to avail themselves of the benefits derived from free exposure to sunlight, but these are the most given to dwell in the dim religious light of much-curtained houses.

The necessity for out-door exercise which has been somewhat generally accepted, induces many to bask in the healthful sunshine for that purpose, thus counteracting in a measure some of the mischief wrought by darkened, gloomy houses; yet there are also many who are unavoidably detained within doors, and to such the admission of sunlight is of the utmost importance to health and a happy frame of mind.

We can pardon the darkened parlor because it is used comparatively little except in the evenings; but the breakfast room, sitting room, nursery and bed rooms must have sunlight, or the inmates suffer. There is no appetizer to compare with a flood of sunshine (excepting always in the hot weather) and there is no purifier equal to it. A sleeping room is not fit to spend, as we must, nearly half our life in, unless the sun is allowed to do its work through open windows some portion of each day; and the sleeper will always be the better for being wakened by the sun streaming into the sleeping room.

It is a most cheering greeting, and prepares us for encountering the demands of the day, as nothing else will. We have only to note the difference when clouds or rain deprive us of its genial influence for a time to be convinced of this.

Children kept in a nursery where the sun never shines, will not only show it in their feeble physical development, but they will require endless sources of amusement and rarely enjoy them when provided. The chances are they will be soured for life if they survive it.

The family setting room likewise needs its beneficial presence. There is no place so dear to the family heart as the same family room if it is, as it should be, a bright cheerful one, and these conditions cannot exist without sunshine. Here we may fully test the room's fitness for human occupation by the judicious use of growing plants. If they thrive in it you may be assured it is fit for human plants, if they do not, then it is unmistakable evidence that the atmosphere is vitiated or lacks something essential to life. Ninety-nine times out of a hundred it is a lack of sunshine.

The kitchen needs the blessed sunshine no less than every other part of the house. Humanity demands that the servant who spends most of the hours of all the days there, should have the benefit of such good as this common blessing is designed to afford.

This is no new subject, and most people are already satisfied as to the correctness of these views of it, yet very few attend to putting them into practice. In selecting homes in the city, people are governed more by trivial reasons affecting social conditions than by its location with reference to free play of sunshine. Of course they have to be governed by the general direction of the streets, but there is some choice in the selection even in this. If the house is wedged in between others it can at least have its openings to the north and south which is infinitely preferable to those standing east and west.

We country people have not only the advantage of *fronting all around*, if we choose, but we can, by having the corners toward the cardinal points, be sure of sunlight in every room in the house some time during the day. This fact is made use of in the construction of hospitals in France, and possibly also in other countries since it has gained the attention of scientists. Having once lived in a house so situated, I would be very reluctant to have mine in any other position.

We are not as much disposed as our city sisters to shut out the sunlight by curtains, but we fall into like error through our need of and fancy for porches. We certainly require liberal provision of that kind in this climate, and they likewise give an air of superior comfort to a country house especially, but unless they are an afterthought, springing from real want, they are very likely to be misplaced and also misconstructed. The architect or builder has more of an eye to embellishment than comfort in such prominent features of a house, and, if permitted, will often place them where they are least likely to be of use and so proportioned as to make them only beautifiers, sometimes also to the serious detriment of indoor comfort. A covered porch should never cover all the windows of any room; it will surely make of it a dull and dreary room. It should be on the side of the house which the family will find most pleasant at such times as they are to be assembled together, and then it should be sufficiently broad to admit of a free and easy adjustment of its occupants so that they need not set in a row like birds upon a limb, nor stumble over each others' feet should they have occasion to pass. I happened, one hot evening in summer a few years ago, to be visiting friends in the city who had one of those long and narrow appendages to the front of their house, and this, upon the evening I speak of, was the only breathing place the house afforded; consequently the entire family, consisting, with myself, of five ladies and two gentlemen, were comfortably seated thereupon with our fans doing vigorous duty—a gentlemen at each end and the ladies ranged symmetrically between—when it soon became apparent that we were the objects of amused attention to passers-by, especially those who were driving, which led to the consciousness of our position and that we were all dressed in black and each had a Japanese fan. Although we were quite willing the public should be entertained, we were not so willing it should be at our expense, and the difficulties in the way of varying the tableau made upon my mind a lasting and unfavorable impression of narrow porches or verandas.

In most rural places the porch becomes during the hot period the most habitable place a house affords, if it is one of those free and easy ones where a hammock can be swung and easy chairs and work baskets may be indulged in without endangering life or limbs. We can have such porches if we are willing to economise in length, and they can usually be so placed as not to darken any room. The fashion of these days admits of irregularities to suit individual wants in building as well as in other matters, and we may venture to place our porches just where we need them, and have windows in every closet wherever it happens to be, without risk of spoiling the appearance of the house by interfering with prescribed order. We should therefore provide for a due share of sunshine and shade, assured that if we use each in its proper proportion, we will live longer and better for so doing. CERES.

Strolls in London.

The antiquity of London, with the thousand associations attending, strike one at every step. No doubt the constantly falling clouds of soot with which the great metropolis is ever enveloped, are most favorable to its venerable appearance, but the street sites are the same, and many of the buildings, and so long as the Tower and Abbey remain, London will posses an interest peculiar to itself. The Castle of Edinburgh is far superior in position and commanding aspect, but it lacks the historic associations which cluster so thickly round the Tower.

York Minster is incomparably more imposing than Westminster, but it has not the thick crowd of tombs, sculptured and eloquent, nor is its history written, as that of the Abbey, in the mind of every student. Along High street, commerce and feet have traveled more than two thousand years. The great Abbey stands on the site of a temple erected to Apollo by the Romans, and in the church yard of St. Paul's are stone coffins of the early Saxons.

St. Paul's is so soot covered that one can hardly tell its original color, but for small sheltered spots under the tops of the columns where soot has not lodged.

Grand as Wren's work is, it loses much of its effect because of its lightness of coloring which greatly detracts from its imposing appearance. In her last work, "A Jaded Wall Flower," (Carters), Miss Warner, in taking her hero, Pitt Dallas, through London, makes him say: "London is an epitome of English history strikingly illustrated; an old oak, gnarled, twisted, and weather worn, with plenty of hale life and young vigor springing out of its rugged old roots. Suppose we take our stand at Whitehall and look at the Banqueting House, built for James the First, the other buildings have mostly perished. Here Elizabeth held her court, and here she lay in state after her death. In Charles the First's time, the royal magnificence displayed at Whitehall was incomparable. All the gayeties, splendors and luxuries of living that then were possible were found here. Here was the scaffold where he died.

"Northumberland house is a grand old building full of records. Along the Strand every step is full of interest. It was full of palaces which have passed away, leaving behind the names of their owners in the streets that remain, or have been built since. Here Sir Walter Raleigh lived; the Dudleys had their abode, and Lady Jane Grey was married; here was the house of Lord Burleigh. In Temple Bar stood Essex House, where Essex defended himself, and from which he was carried to the Tower. In Lincoln's Inn field, Russell died.

"It is all over, the records of violence, intolerance and brutality. It meets you at every turn. At every step there is the memorial of some great man's life, or some noted man's death. There are old picturesque houses; old crypts of former churches, over which stands now a modern representative of the name; old monuments many; old doorways, courts, corners and gateways.

"Bnneath the pavement in the prisoners' chapel of the Tower lie between thirty and forty people, or the remains of them, with their heads separated from their bodies, some of them with no heads at all. In the Abbey the glory and pomp of earthly power are here brought into sharp contact with the nothingness of it. So much yesterday, so little to-day. Henry the Seventh ordered ten thousand masses to be said in his chapel for the repose of his soul. Round his tomb are the ten patron saints, to whom he looked in time of need. The two Tudor queens, Elizabeth and Mary, lie together in a vault alone. Personal rivalties, jealouses, hatred, religious enmity, they are all composed now—they are gone where the 'honor that cometh from God' is the only honor left."

Airing Bedding.

The Golden Rule says: When we remember that more than one-half of the waste matter of the body—represented by all taken as food and drinks—should pass off through the seven millions of pores of the surface, we shall see some reasons in favor of a proper care of the surface, as well as of the personal clothing and the bedding. If it is true that the personal clothing, the flannels, need washing as certainly as the face and hands—the whole body as certainly—we may infer that the bed clothes have a special demand for attention. It should be remembered that, during the night, when the body is warmer than usual, the pores more open, that the waste must naturally pass off more freely than by day. It follows that the bedding must be more thoroughly affected, soiled, demanding extra care. (Of course the thoughtful and the cleanly will not wear any clothing by night that has been used by day). The Europeans have a custom of removing the beds and bedding, placing all on chairs near an open window, and letting them remain for a half day! It is quite possible that some will think that untidy to allow the beds to remain unmade for that length of time, while the European, the neat and cleanly, may regard us as very untidy, to make the bed almost as soon as it is vacated, allowing the sleepers to lie in perspiration—filth! I know of no easier and more effectual way of promoting this needed purity of bedding than by airing and sunning, as the air and sun are the great purifiers, demanding no compensation for important services rendered. The breezes that should be allowed to pass through the rooms carry off the foulness prepared for that purpose by the action of the warm sun, rarifying the noxious gases, the two effecting very important changes in our sleeping rooms. Air and sun as many rooms as possible, if you would be neat and clean, retaining the eyesight in its best condition.

Domestic Recipes—Selected.

STEWED KIDNEY.—Stewed Kidneys make a very appetizing breakfast dish. There are many ways to prepare them. One of the best is to take three fresh ones, skin them nicely and slice thin. Fry in a well-covered pan of boiling butter till they are browned. Dredge over them a little flour, put in three or four chopped button-mushrooms, if you have them, a little chopped parsley, and season with pepper and salt. Lay the slices of kidney, one overlaping the other, in a neat ring, pour the gravy over without disturbing them, and put a bunch of parsley, like a tuft, in the centre.

STUFFED TOMATOES.—Take a dozen smooth, solid tomatoes, slice off the part where the stem joins the fruit, take out the centre with the seeds, and fill the cavities with a mixture made as follows: Put into a stewpan a quarter of a pound of fat bacon, a dozen mushrooms, an onion, a bunch of parsley and a little thyme (all of the above ingredients to be minced very fine). Season the mixture with salt, pepper and a pinch of cayenne; stir over the fire for a few minutes, and then add the yolks of five eggs, well-beaten, to bind it together. After the tomatoes are filled with the mixture put them in a baking pan, pour around them Lucca cream oil just sufficient to cover the bottom of the pan, strew over their tops some fine bread crumbs, and take in a quick oven.

BANANA CAKE.—One cup of butter, two cups of sugar, one cup of water or of sweet milk, three eggs, four cups of flour, three small teaspoonfuls of baking powder. Mix lightly and bake in layers. Make an icing of the whites of two eggs, and one cup and a half powdered sugar. Spread this on the layers, and then cover thickly and entirely with bananas, sliced thin. This cake may be flavored with vanilla. The top should be simply frosted.

TUTTI FRUTTI.—One quart of rich cream, one and one-half ounces of sweet almonds; chopped fine; one-half pound of sugar; freeze and when sufficiently congealed add one-half pound of preserved fruits, with a few white raisins chopped, and finely sliced citron. Cut the fruit small and mix well with the cream. Freeze like ice cream. Keep on ice until required.

A NICE TEA DISH.—Make a short sweetened pie crust, roll thin, and partly bake in sheets; before it is quite done take from the oven, cut in squares of four inches or so, take up two diagonal corners and pinch together, which make them basket-shaped, now fill with whipped cream or white of egg, or both, well sweetened and flavored, and return to the oven for a few minutes.

CHILI SAUCE.—Six large ripe tomatoes, four green peppers, one onion, one tablespoonful of salt, one and a half cups of strong vinegar, chop peppers and onions; boil one hour.

Baltimore Markets—Nov. 17.

Breadstuffs.—*Flour.*—The market is dull. We quote:

Western Super, $2.25@2.62; Western Extra, $2.75@3.37; Western Family, $3.50@4.50; City Mills Super, $2.25@2.75; City Mills Extra, $3.00@3.75; City Mills Rio Brands Extra, $4.62@4.65; Winter Wheat Patent Family, $5.00@6.75; Minnesota Patent Family, $5.75; Baltimore Winter Wheat Patent, $5.75; Baltimore High-Grade Family, $4.25; Baltimore First-Grade Extra, $3.00; Baltimore Second-Grade Extra, $4.75.

Wheat.—The market for Southern is quiet and nominally steady, with a small offering. Common to fair lots brought 78@80 cts., good Fultz 82@84 cts., good to choice mixed 85@88 cts., and fair to prime longberry sold at 90@93 cts. The market for Western opened firm and ruled easy, closing quiet at the inside figures. After 'Change the market was dull but steady, closing as follows: 78¼@78¾ cts. for spot and November, 79¼@79¾ cts. for December, and 81¼@81¾ cts. for January delivery.

Corn.—The market for Southern is quiet and slightly easier with the offering moderate. White sold at 53@55 cts. for green and damp, 56¾ for dry cargoes and 54 cts. for small lots. Yellow sold at 48¾ cts. for damp and steamer lots, and 51@53 cts. for to grade. The market for Western was dull and nominal, closing about steady. After 'Change the market was dull and weak, closing as follows: Year 47 cts, nominal, and January 45¾ cts. sales.

Oats.—The market is quiet and steady. We quote white at 34@35 cts, mixed at 32@33 cts., Pennsylvania at 33@35 cts., and Maryland and Virginia at 33@36 cts.

Rye.—There is a moderate supply and the market is quiet and steady. Good to prime samples of Maryland are quoted at 63@65 cts.

Mill Feed.—The supply is liberal and the market is quiet and easy, with a moderate demand. City Mills middling sells at $16@17 for light weight. Western winter bran is quoted at $14.50@15 and middling at $15.50@17, as to weight.

Seeds.—The market for Clover is quiet and generally easier, with little or no demand for the small lots offering on the floor of the Exchange. Choice samples are quoted at 5@5¾ cents. Timothy is steady at $1.30@1.35 per bushel for car loads, and 5 cents higher for job lots.

Hay and Straw.—There is a moderate demand and the market for hay is dull and rather easy, with ample receipts. We quote choice Cecil county at $16@18 per ton, good to prime Maryland and Pennsylvania at $14@15.50, Western at $13@15, and mixed at $11@14. New Clover is quoted at $11@13. Straw is quiet and steady, being quoted at $9@10 for wheat, $10@11 for oat, $17@18 for long rye, and $14@15 for short.

Cotton.—There is a moderate offering and the market is about steady, with more inquiry from spinners. We quote: Middling, 10@10¼ cts.; Low Middling, 9¾@9¾ cts.; Strict good ordinary, 9¼@9¾ cts.; Good ordinary, 9@9¼ cts.

Tobacco—*Leaf.*—The offering of Maryland is mostly of ground leaf, which is of unusually good quality, and is in active demand and very firm. The receipts of crop are moderate, and the market is quiet and firm, with good grades selling very freely at full prices. The supply of Ohio is very small, and the market is quiet and nominally firm. We quote: Maryland inferior frosted $2@3; do. sound common $3.50@5; good common $5.50@6 50; do. middling $7@8.50; do. do. good fine red $8.50@11; do. fancy $12@14; upper country $5@16; do. ground leaves, $2@8. Ohio inferior to good common, $4@6; greenish and brown $7@8; do. medium to fine red $9@11; common to medium spangled $7@11; do. fine spangled and yellow $12@20; do. air-cured medium to fine $7@14.

Live Stock—*Beef Cattle.*—The market was fairly active. Prices ranged as follows: Best, $5 25@6; that generally rated first quality, $4.50@5.00; medium or good fair quality, $3@4.25; ordinary thin Steers, Oxen and Cows, $2.75@3. Extreme range of prices, $2.50@6. Most of the sales were from $3.50@5 50 per 100 lbs.

Swine.—The demand is moderate to good for rather limited offerings. We quote at 5¾@6¼ cts per lb. net, with extra a shade higher.

Sheep and Lambs.—Trade is very slow, one of the dullest markets of the season. We quote Sheep at 2@4¼ cts., and Lambs at 3@5 cts per lb. gross.

Dressed Hogs, $5.50@6.00 per 100 lbs.

Butter.—Choice table grades are very firm, with a good demand and the supply moderate. Medium and low grades are dull and neglected. We quote choice New York State at 26@28 cts., fresh Western-packed choice to fancy at 20@22 cts., and good to prime at 16@18 cts.; near-by receipts, 16@22.

Eggs.—The receipts are moderate and the market active and firm, with a good demand for choice fresh stock. We quote Pennsylvania and near-by receipts at 26@27 cts. Western is firm at 25@26 cts.

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AT AUCTION, DEC. 18, 1884.

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Of "Linden Grove," Coopersburg, Pa., instructs us to announce his Annual Fall Sale of JERSEY CATTLE, to take place

Thursday, Dec. 18, 1884, at the AMERICAN HORSE EXCHANGE, Limited, Broadway and 50th St., New York.

About 70 HEAD will be sold without reserve, consisting chiefly of Imported Cattle direct from Quarantine at Coopersburg, selected on the Island and imported by himself, and fully up to the high standard of quality which has rendered his importations famous. The Catalogue will also include about ten very superior Imported and American-bred animals from his home herd, of the most popular butter strains. The Consignment, as a whole, is intended to possess a full measure of the merit and attractiveness with which on former occasions he has always made good his promises to the public.

More full particulars in future advertisements. Catalogues ready about Nov. 25, for which please address T. S. COOPER, Coopersburg, Pa.

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NOTE—Buyers who cannot conveniently winter their cattle, or who wish to breed them to the high-class bulls at Linden Grove, will have the privilege of returning them to Coopersburg, to be kept until spring at very moderate rates.

Strawberry Plants

Bidwell, Manchester, Sharpless, Jersey Queen, Crescent, Wilson and other sorts, old and new.

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75,000 Gregg, $7.00 per 1,000.

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10 U. S. Government Bonds of $500	$5,000	1 Pony Phaeton	100
20 U. S. Greenbacks of $500	4,000	1,000 Pocket Silver Pencil Holders	$1,000
10 U. S. Greenbacks of $100	1,000	1,000 Gent's Pocket Knives	1,000
1 Silver plated Columbia Bicycle	150	1,000 U. S. Greenbacks of $1 each	1,000
1 Grand Square Piano	400	10 Gents' Gold Watches, English Movement	200
1 Grand Cabinet Organ	300	10 Ladies' " " "	200
1 Three cent Rockaway	300	20 Boys' Silver " American "	200
1 Silver Dinner Service	100	5 Solitaire Diamond Finger Rings	400
1 Toy Baggage	1,000	1 Patent Harvesters	1,000
20 U. S. Greenbacks of $50 each	1,000	2,000 Elegant Art Gems	1,000
1000 Autograph Albums, $1 each	2,000	5 Raw Silk Parlor Suit Furnishers	1,000
2 Village Carts	200	1,400 Gold Finger Rings, Ladies' Breast Pins, Gents' Scarf Pins, Lockets, Fans and Chains, and 98,421 other presents, valued from 20 cents to $1, makes a grand aggregation of 100,000 presents, thus guaranteeing a present to each and every new subscriber who sends us 50 cents.	

All of the above presents will be awarded in a fair and impartial manner. Presents will be sent to any part of the United States or Canada. No postage will be asked from any subscriber to forward presents. **THIRTY-FIVE CENTS** which you send us is the regular price for a year's subscription and therefore we charge nothing for the presents. OUR PROFIT will be in your future patronage and the increased rate we will get for our advertising space. YOUR SUBSCRIPTION FREE. Get five of your friends to join you by cutting this out and showing it to them. Send us **$1.75** and we will send you THE POULTRY KEEPER for one year, and one numbered receipt for each of your subscribers, and one extra for your trouble. No postponement.

SEND TEN SUBSCRIBERS WITH **$5.00** and we will send you 12 subscriptions and thirteen receipts.

50 DAYS ONLY! This offer will hold good till December 20th only, as we shall limit the number of new subscriptions to 100,000, so we would advise all our friends to forward subscriptions at an early date, as in no case will they be received later than December 20th.

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THE POULTRY KEEPER is so well established, having already 30,000 subscribers, and is backed by ample capital, so that everyone of our subscribers may be sure of getting what we promise. Indeed we could not afford otherwise with a paper that has already secured 30,000 subscribers on its merit. Undoubtedly some who read this new advertisement think no offer to give away $50,000 in presents is most unreasonable and unprofitable; but let us say to all such persons that it costs anywhere from $35,000 to 150,000 to become a large circulation to a paper. We know of a publisher that spent $5,000 in one week in giving away free copies and advertising his papers, and the money was well spent, for it secured for him an established circulation that paid good interest on the investment. Publishing nowadays must either be done on an extensive scale or not at all. It costs just as much for matter, and just as much for illustrations, electrotypes, editorial services, rent and for setting up the type for a paper of 100 circulation as it does for a paper with 200,000 circulation. On small editions, each one of the above items swells the cost of a single paper alarmingly, but on very large editions, the expense is spread over so many papers that it is almost entirely lost; thus you can see that large profits can be made only by doing a large business. This is precisely what we propose doing with THE POULTRY KEEPER.

We will send a printed List of the Awards Free, and all Presents will be forwarded to Holders of Receipts as they may direct.

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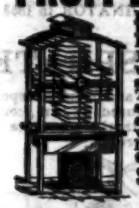

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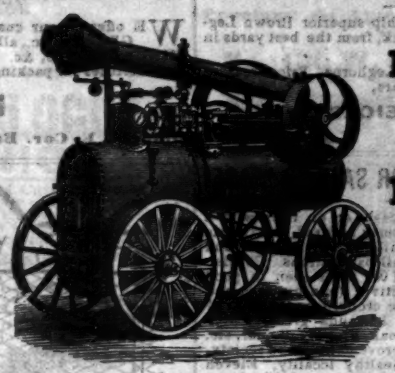

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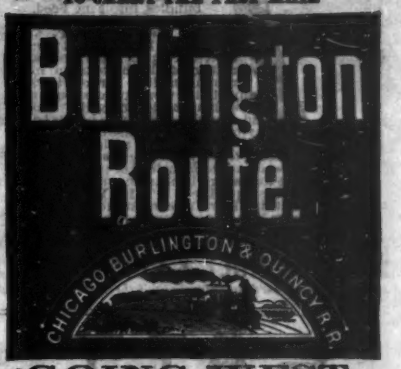

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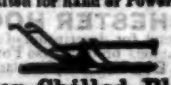

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